b fol
AM

Ex Libris

ACQUIRED BY

Digitized by the Internet Archive
in 2015

https://archive.org/details/b21356919

ARCTIC EXPEDITION,

1875-6.

JOURNALS AND PROCEEDINGS

OF THE

ARCTIC EXPEDITION, 1875-6,

UNDER THE COMMAND OF

CAPTAIN SIR GEORGE S. NARES, R.N., K.C.B.

[In continuation of Parliamentary Papers C 1153 of 1875, and C 1560 of 1876.]

Presented to both Houses of Parliament by Command of Her Majesty, 1877.

LONDON:
PRINTED FOR HER MAJESTY'S STATIONERY OFFICE, BY
HARRISON & SONS, PRINTERS IN ORDINARY TO HER MAJESTY,
ST. MARTIN'S LANE.

[C.—1636.]

12648

CONTENTS.

PAGE

CAPTAIN NARES:

Letter of Proceedings, 27 October, 1876 1
Letter of Proceedings, 27 October, 1876, (between 22 July, 1875, and 27 October, 1876) 2
General Order to Sledge Parties, 21 July, 1875 39
Orders to Captain Stephenson on parting company, 1 August, 1875 40
Orders to Captain Stephenson, 8 March, 1876 42
Orders to Captain Stephenson, 30 April, 1876 43
Orders to Captain Stephenson, 30 April, 1876 43
Orders as to Stores in Polaris Bay, 30 April, 1876 44

CAPTAIN STEPHENSON:

Letter of Proceedings between 26 August, 1875, and 30 March, 1876 44
Letter of Proceedings between 30 March, 1876, and 6 April, 1876 54
Letter of Proceedings between 6 April, 1876, and 22 May, 1876 55
Letter of Proceedings between 22 May, 1876, and 12 August, 1876 58
Copy of Captain Hall's Record 61

AUTUMN TRAVELLING PARTIES, 1875.

LIEUTENANT WYATT RAWSON:

Orders to, 8 September 63
Notice to be placed in Cairn 63
Report, 10 September 63

LIEUTENANT PELHAM ALDRICH:

Orders to, 9 September 64
Report of Proceedings, 13 September 64
Orders to, 22 September 68
Report of Proceedings, 6 October 68

COMMANDER ALBERT H. MARKHAM:

Report of Proceedings, 16 September 78
Orders to, 25 September 81
Report of Proceedings, 18 October 82

LIEUTENANT WYATT RAWSON:

Orders to, 2 October 89
Report of Proceedings, 14 October 89

LIEUTENANT ROBERT H. ARCHER:

Orders to, 4 October 94
Report of Proceedings, 12 October 94

SUB-LIEUTENANT CRAWFORD CONYBEARE:

Orders to, 4 October 97
Report of Proceedings, 12 October 97

CAPTAIN STEPHENSON:

Memorandum of, 20 October 100

LIEUTENANT REGINALD B. FULFORD:

Report of Proceedings, 7 October 100

LIEUTENANT LEWIS A. BEAUMONT:

Orders to, 11 October 102
Report of Proceedings, 14 October 102

Spring Travelling Parties, 1876.

H.M.S. "Alert."

PAGE

Sub-Lieutenant George Le C. Egerton:
Orders to, 8 March 104
Sledge Journal, 12 to 15 March 104
Sledge Journal, 20 March to 4 April 110

NORTHERN SLEDGE PARTY.

Commander Albert H. Markham:
Orders to, 3 April 118
Lieutenant A. A. C. Parr:
Orders to, 3 April 119
Commander Albert H. Markham:
Equipment of Sledges 119
Report of Proceedings, 1 July 123
Sledge Journal, 3 April to 14 June.. 126
Surgeon Edward L. Moss:
Orders to, 3 April 157
Sledge Journal, 3 to 14 April 157
Orders to, 23 April 160
Sledge Journal, 23 to 30 April 161
Report of Condition of Northern Sledge Party, 1 July.. 164

WESTERN SLEDGE PARTY.

Lieutenant Pelham Aldrich:
Orders to, 3 April 167
Report of, 15 July 168
Remarks on Clothing, &c. 173
Sledge Journal, 3 April to 26 June 175
Lieutenant George A. Giffard:
Orders to, 3 April 231
Summary of Proceedings and Sledge Journal, 3 April to 3 May 231
" " " 7 to 24 May 257

Lieutenant Wyatt Rawson:
Orders to, 10 April 274
Sledge Journal, 10 to 18 April 274
Sub-Lieutenant George Le C. Egerton:
Orders to, 10 April 279
Sledge Journal, 10 to 18 April 279
Orders to, 2 May.. 282
Sledge Journal, 2 to 9 May 283
Orders to, 11 May 286
Letter to Captain Feilden, 11 May 286
Sledge Journal, 11 to 25 May 287
Orders to, 25 May 292
Sledge Journal, 27 May to 3 June 292
Sledge Journal, 15 to 23 July 296
Lieutenant William H. May:
Orders to, 24 April 300
Sledge Journal, 24 to 30 April 300
Orders to, 4 May 303
Sledge Journal, 4 to 9 May.. 304
Sledge Journal, 25 May to 7 June 307
Orders to, 8 June.. 313
Sledge Journal, 8 to 14 June 313
Orders to, 18 June 316
Sledge Journal, 18 to 25 June 316

H.M.S. "Discovery."

PAGE

Lieutenant Robert H. Archer:
Orders to, 27 March 320
Report of, 4 April 320
Orders to, 7 April 322
Addenda, 13 April 323
Report of, 4 May 323
Sledge Journal, 8 April to 2 May 326

EASTERN SLEDGE PARTY.

Lieutenant Lewis A. Beaumont:
Orders to, 20 April 338
Orders to, from Captain Stephenson, 9 May 339
Letter from Captain Stephenson, enclosing Lieutenant Beaumont's Report, 20 September .. 340
Report of Lieutenant Beaumont, 17 August 341
Sledge Journal, 6 April to 15 August 358

Lieutenant Wyatt Rawson:
Orders to, 20 April 404
Lieutenant Beaumont's Orders to Lieutenant Rawson, 10 May 404
Report of Lieutenant Rawson, 16 August 405
Sledge Journal, 11 May to 25 June 406

Dr. Richard W. Coppinger:
Orders to, from Captain Stephenson, 5 April 418
Orders to, from Captain Nares, 20 April 419
" " 30 April 419
" " 3 May 420
Proceedings, 12 September 420
Sledge Journal, 5 to 15 May 424
Report of Condition of North Greenland Sledge Parties, 1 July 430

Lieutenant Reginald B. Fulford:
Order to, 7 May 431
Order to, 17 May 432
Proceedings 432
Orders to, from Lieutenant Beaumont, 12 July 434
Sledge Journal, 7 May to 15 July 434

Dr. Richard W. Coppinger:
Report on Petermann Fiord 444

Sub-Lieutenant Crawford J. M. Conybeare:
Orders to, 7 April 446
Orders to, from Lieutenant Archer, 15 April 447
Report of, 21 April 447
Sledge Journal, 8 to 20 April 448
Orders to, from Lieutenant Fulford, 29 April 452
Orders to, 7 May 452
Report of, 19 May 452
Sledge Journal, 2 to 18 May 453
Orders to, 22 May 455
Sledge Journal, 22 to 31 May 456

Dr. Thomas Colan:
Letter to Director-General of Medical Department, 27 October 458

Staff Surgeon Belgrave Ninnis:
Letter to Director-General of Medical Department 464

Letter from Secretary of Admiralty to Commander-in-Chief, Portsmouth, 3 November 466

"Pandora," Captain Allen Young:
Letter of Proceedings, 19 July 478
" 1 November 479
Letter from Lieutenant Charles R. Arbuthnot to Captain Young, 25 September 476
Copies of Records discovered 477
Letter from Secretary of Admiralty to Captain Young, 10 November 479

Appendix No. 1:
Sir G. Nares' Report of Quality of Provisions and Stores supplied to Expedition 480

CHARTS, MAPS, &c., ILLUSTRATING THE PROCEEDINGS.

Chart of Davis Strait and Baffin Bay, showing the Tracks of H.M.S. "Alert" and "Discovery," 1875–6 at page 38
Chart of Smith Sound and the Northern Coasts of Grinnell Land and Greenland, showing the Tracks of Ships and Sledges .. .. „ 38
Plan of Discovery Harbour .. .. „ 62
Track of Dog Sledges "Alert" and "Challenger," September and October, 1875 .. .. „ 78
Track of Autumn Sledge Parties under Commander Markham, 1875 .. .. .. „ 88
Coast Outline between Winter Quarters of H.M.S. "Alert" and Cape Union .. .. .. „ 92
Track of Sledges up the Bellows Valley, October, 1875 .. .. „ 96
View up the Bellows from the Devil's Back .. .. „ 99
Attempted Sledge Journey to Robeson Channel, October, 1875 .. .. „ 100
Track of Dog Sledge "Clements Markham," March and April .. .. „ 116
Chart showing Outward and Return Tracks of Northern Sledge Party, April to June, 1876 .. „ 126
Sketch of Crevasse in Snow Valley .. .. „ 163
Chart showing Outward and Return Tracks of Western Sledge Party, April to June, 1876 .. „ 172
Sketch of Cape Columbia .. .. „ 197
Tracks of Sledge "Poppie," April and May, 1876 .. .. „ 232
Sketch of Westward Ho Valley .. .. „ 288
Sketch of Westward Ho Valley from Camp .. .. „ 288
Sketch of Cheops from Alternative Hill .. .. „ 288
Sketch of James Ross Bay from Alternative Hill .. .. „ 288
Sketch of the Land from Oopik Island to Depôt Point .. .. „ 288
Sketch of the Land (with angles) to illustrate Journal .. .. „ 302
Ditto ditto .. .. „ 304
Ditto ditto .. .. „ 306
Chart of Archer Fiord .. .. „ 336
Chart showing Outward and Return Tracks of Eastern Sledge Party, April to July, 1876 .. „ 358
Sketch of Land in neighbourhood of Repulse Harbour from Camp of 26th April .. .. „ 424
Sketch of North Shore of Polaris Promontory .. .. „ 427
Sketch of West Shore of Robeson Channel .. .. „ 428
Sketch of North-East Shore of Petermann Fiord.. .. .. „ 445
Sketch of South-West Shore of Petermann Fiord.. .. .. „ 445
Plan of Petermann Fiord .. .. „ 446
Track of Steam Yacht "Pandora" from England to Disco .. .. „ 478

NOTATION (BEAUFORT) ADOPTED TO DESCRIBE THE FORCE OF WIND AND STATE OF WEATHER DURING THE EXPEDITION.

FIGURES TO INDICATE THE FORCE OF THE WIND.

1	Light Air	Just sufficient to give steerage way.	
2	Light breeze	With which a well conditioned ship-of-war of Admiral Beaufort's time (1800–1850), with all sail set, would go in smooth water, and "clean full," from	1 to 2 knots.
3	Gentle breeze		3 to 4 knots.
4	Moderate breeze ..		5 to 6 knots.
5	Fresh breeze	To which she could just carry in chase "full and by"	Royals, &c.
6	Strong breeze		Single-reefed topsails, and top-gallant sails.
7	Moderate gale		Double-reefed topsails, jib, &c.
8	Fresh gale		Triple-reefed topsails, &c.
9	Strong gale		Close-reefed topsails and courses.
10	Whole gale	With which she could scarcely bear close-reefed main topsail and reefed foresail.	
11	Storm	Which would reduce her to storm-stay-sails.	
12	Hurricane	Which no canvas could withstand.	

LETTERS TO INDICATE THE STATE OF THE WEATHER.

b	Blue sky.	p	Passing showers.
c	Clouds (detached).	q	Squally.
d	Drizzling rain.	r	Rain.
f	Foggy.	s	Snow.
g	Gloomy.	t	Thunder.
h	Hail.	u	Ugly (threatening appearance of weather).
l	Lightning.	v	Visibility (objects at a distance unusually visible).
m	Misty (hazy).	w	Dew.
o	Overcast.	z	Snow drifting.

NOTE.

In a few cases the names given to headlands and mountain ranges in the officers' journals and the accompanying plans are those given at the time by the officers exploring.

The names, as finally adopted by the Commander of the Expedition, will be found on the charts printed after pages 38, 62, 126, 172, 358 respectively.

ARCTIC EXPEDITION, 1875-6.

REPORT OF PROCEEDINGS. CAPTAIN G. S. NARES.

Between 22nd July, 1875, and 27th October, 1876.

H.M.S. "Alert," at Valentia,
27th October, 1876.

Sir,

Their Lordships will have already learnt, by telegraph from Valentia on the 27th October, that H.M. Ships "Alert" and "Discovery" have returned from Arctic Service. I parted company with the latter ship during a heavy gale on the 19th instant, Captain Stephenson has orders to repair to Queenstown.

The results of the voyage agree precisely with the expectations of the best Arctic authorities on our leaving the shores of Great Britain last year, and which were expressed by myself to their Lordships at the Admiralty before sailing, viz. :—

That with an ordinary season I would be able to penetrate the northern limit of Robeson Channel, however far it extended, but that wherever it ended and opened out into the Polar Basin there the ship would be stopped by the ice.

And also that, with the ship advanced to a high Latitude as a fixed base, if continuous land was discovered trending towards the north, our sledge parties would certainly reach the Pole ; but that journeying over the ice in the Polar Sea would prove impracticable with sledges.

The "Alert" was advanced to the shores of the Polar Sea, and was there stopped by heavy impenetrable ice in Lat. 82° 27′ N., Long. 61° 22′ W., and after a most determined and laborious journey by Commander Markham and Lieutenant Parr, our sledge parties forced their way along the heavy icy road towards the north, and advanced the British flag to Lat. 83° 20′ 26″ N.

I am sorry to have to report the loss of four men belonging to the expedition, by death ;—Neil C. Petersen, Dog-Driver and Interpreter, on the 14th May ; George Porter, Gunner, R.M.A., on the 8th of June ; James Hand, A.B., on the 13th of June ; and Charles W. Paul, A.B. on the 29th June : the former after a severe frost-bite, received while sledging in the early spring, and the latter three from scurvy, which seriously attacked each of the advanced sledge parties ; but I am happy to add that the invalids have now all recovered.

With the exception of the loss mentioned above, the expedition is returning with each member in good health and the ships in as good condition as when they left England.

The "Discovery" wintered in a sheltered harbour in Lat. 81° 44′ N., Long. 65° 3′ W.

The coast line from the winter quarters of the "Alert" to the northward and westward was explored by a sledge party under Lieutenant Aldrich to Lat. 82° 16′ N., Long. 85° 33′ W. Cape Columbia, the northernmost cape, being in Lat. 83° 7′ N., Long. 70° 30′ W.

Sledge parties from the "Discovery," commanded by Lieutenant Beaumont, using the Polaris Depôt as a base, explored the north coast of Greenland to Lat. 82° 18′ N., Long. 50° 40′ W.

No land was sighted to the northward of the above explorations except the continuation of the Greenland Coast to Lat. 82° 54′ N., Long. 48° 33′ W.

Lady Franklin Sound was explored by Lieutenant Archer from the "Discovery," and was found to run S.W. 65 miles, terminating in two small bays.

Petermann Fiord was examined by Lieutenant Fulford and Dr. Coppinger for 19 miles, and was then found to be impassable for sledges, owing to glacier ice.

A seam of excellent coal, 250 yards long and 25 feet thick, was found in the neighbourhood of the "Discovery's" winter quarters near the sea, but only small vessels could obtain sheltered anchorage nearer than at five miles distance.

The ice in the Polar Sea unable to escape to the southward in large quantities is of unusual thickness, averaging 80 feet.

The sea is never navigable beyond the position attained by the "Alert" on the west side and the "Polaris" on the east side of the channel.

From Cape Sabine to the northward the expedition had to struggle constantly with the ice during both the outward and homeward voyage.

Having proved the impracticability of reaching the North Pole by Smith Sound,

and examined all lands within a reasonable distance of our winter quarters, I decided to return with the expedition to England this year rather than expose the crew to a second sledging season in a region from which all the obtainable game had been shot down.

On the passage home, in a severe gale off Cape Farewell, the "Alert's" rudder head was severely sprung and rendered useless. The ship has been steered across the Atlantic by the rudder pendants. The spare rudder, itself badly sprung, has been rendered sufficiently serviceable to steer the vessel to Portsmouth.

I have ordered Commander Markham to proceed with H.M.S. "Alert" to Queenstown, and place himself under the orders of Captain Stephenson, of H.M.S. "Discovery."

I have the honour to be, Sir,
Your obedient Servant,
G. S. NARES,
Captain Commanding Arctic Expedition.

To
The Secretary of the Admiralty,
London.

H.M.S. "Alert," at Valentia,
27th October, 1876.

Sir,

I have the honour to report in detail the proceedings of the Expedition since leaving Upernivik on the 22nd of July, 1875, as follows:—

Expedition leaves Upernivik.

The "Alert" and "Discovery," one ship in tow of the other, left Upernivik, from which port I last had the honour of addressing you, on the 22nd July, 1875.

A dense fog prevailing at sea, I steamed to the northward, between the islands and the main land, experiencing clear and calm weather until arriving near Kangitok Island, when the fog, stealing in from the sea, gradually obtained the mastery, and completely enveloped us. The numerous picturesque rocky islands and reefs in this sheltered labyrinthine passage are so incorrectly represented in the published charts that a pilot is at present a necessity. The one who accompanied us, an Esquimaux, informed me that many of the likely-looking channels are bridged across with sunken reefs, and from the many rocks we saw lying just awash directly in our passage, I have reason to believe his statement.

Upernivik Glacier.

The large discharging Upernivik Glacier having only one outlet, leading direct to the sea, its numerous icebergs of all sizes are collected in great numbers by the eddy tides and currents among the islets situated to the southward, and tend to keep the channels completely closed until late in the season; but when once open in July by some of the bergs grounding on rocks, and others, by their height above the flotation line, affording certain evidence of deep water, they assist rather than impede navigation during calm weather. On the morning of the 23rd, after an anxious night, passed with a dense fog, and a strong tidal current, in a narrow channel, in which we could obtain no bottom with 100 fathoms of line at a cable's length of the shore, and with the "Discovery" in tow; during a momentary clearance of the atmosphere, two Esquimaux in their kyacks were observed close to us. After consulting with them through Christian Petersen, Danish and Esquimaux Interpreter, they volunteered to conduct us to an anchorage. On following them to the position they denoted, and obtaining no bottom with the hand-lead line at the main chains, I felt the bow of the ship glide slowly up on the ground. Through the fog we could then see that the land was within fifty yards of us. The Esquimaux had evidently not considered that our ships required a greater depth of water to float in than their own frail canoes. As it was nearly low water, and the tide still falling, I allowed the ship to remain quiet where she was, the "Discovery" still hanging to us by her towing hawser, and took advantage of the enforced delay by landing the ships' companies to wash their clothes.

"Alert" on shore near Kangitok.

The fog lifted slightly as the day advanced; and as the tide rose the ship floated without having incurred any strain or damage whatever. I then proceeded to sea; discharging the pilot, who was not to blame for our mishap, off the north shore of Kangitok, the outlying island of the group; after passing which the channel presents no difficulties.

Thinking that probably a distorted account of our getting on shore might reach Europe, at the last moment I wrote a hasty pencil letter to Captain Evans, Hydrographer, merely to point out how very unimportant the slight detention had been.

Crossing through the "Middle Ice," Baffin Bay.

By 4 P.M. we had passed the Brown Islands, with a sea perfectly clear of ice before and around us. Having given much study and consideration to the question, and a high and very steady barometer following a south-east wind, denoting that the calm settled weather we had lately enjoyed was likely to continue, I decided to force my way through the middle ice of Baffin Bay instead of proceeding by the ordinary route round

Melville Bay. Accordingly both ships proceeded at full speed to the westward, racing in company for Cape York, with only about a dozen icebergs in sight ahead, floating quietly on a calmly mirrored sea, to dispute our passage. As we passed out from the land the fog gradually dissolved and revealed a magnificent and unique panorama of the ice-capped mountains of Greenland, which give birth to the Upernivik Glacier, fronted by innumerable icebergs, and, at a long distance in advance, by the group of scattered black islets among which we had passed the previous night, and of which Kangitok is the northernmost.

Middle Pack.

At 1.30 A.M. of the 24th we ran into the pack at a distance of 70 miles from Kangitok. It consisted of open-sailing ice, from one to three feet, and occasionally four feet, in thickness. The floes were at first not larger than 250 yards in diameter, and very rotten, dividing readily, and opening a channel when accidentally struck by the ship. The reflection in the sky near the horizon denoted that while the ice was very open to the southward of us, it was apparently closer packed to the northward. About 6 A.M., when we had run 30 miles through the ice, it gradually became closer, and the floes larger, estimated as measuring one mile in diameter, and necessitated a discriminating choice to be made of the best channels. For 14 hours, during which time we ran 60 miles, the ice continued in much the same state, never close enough to suggest the probability of a barrier occurring, and yet keeping the look-out in the "Crow's Nest" fully employed. After 8 P.M. the channels of water became decidedly broader and more numerous, so I gradually altered course to the northward, steering directly for Cape York, the ice becoming more and more open as we advanced.

Arrive at Cape York.

At 9.30 A.M. of the 25th July we sighted the high land north of Cape York, and at 11 o'clock, much to the astonishment of the Ice Quartermasters, who continually declared "It will ne'er be credited in Peterhead," we were fairly in the "north water," and able again to think about economising coal, having come through the middle ice in 34 hours without a check: but it is my duty to add, with not a few deep scratches along the water-line.

Middle passage through Baffin Bay.

In consequence of our having made a successful voyage through the middle ice, it should not be too hastily concluded that a similar passage can always be commanded. The middle pack is justly dreaded by the most experienced ice navigators. Large icebergs and surface-ice, floating in water at various depths, when affected either by wind or an ocean current, move at different rates; hence, when in motion, as one passes the other, the lighter surface-ice, incapable of controlling its course, is readily torn in pieces by the heavy massive iceberg; therefore, a ship once entrapped in pack ice among icebergs, unless she has water space to allow her to move out of the way, is constantly in danger of being carried forcibly against a berg. On such occasions man is powerless, for he can take no possible means to save his vessel. Before steam vessels were used for ice navigation the masters of sailing ships, being unable to take full advantage of a favourable calm, very wisely seldom ventured to force their way through the middle ice, and chose, in preference, the chance of delay in making the safer passage through Melville Bay, where, by securing their vessel in dock in the fixed land ice, they ran less danger of being nipped whilst forcibly detained by the channels through the ice remaining closed.

At the latter end of July with an open season, indicated by the main pack not being met with nearer than fifty miles from the land, in about Latitude 73° 20′ and a continuous calm, to allow the northerly running current on the Greenland shore and the southerly running one on the western side of Baffin Bay to open up the ice, I believe a passage can always be made by a steam vessel, but, unless this favourable combination of circumstances is met with, so far as the scanty knowledge we at present possess enables us to judge, the passage must still be said to be doubtful.

"Discovery" visits Cape York.

Soon after sighting land, and getting clear of the drift ice, the "Discovery" parted company to communicate with the natives at Cape York, while the "Alert" proceeded towards the Carey Islands.

Icebergs off Cape York.

A vast collection of icebergs, many of them aground, were thickly crowded together off the Cape, and in lines parallel with the coast trending towards Conical Rock and Cape Atholl. In the offing they were less numerous, which I attribute to the southerly current which we experienced the following day on our passage to the Carey Islands, catching up and carrying with it to the southward those that drift out from the main body to the westward beyond the influence of the north-running current on the Greenland coast.

Cape York Natives.

During the stay of the "Discovery" at Cape York, the natives were communicated with through Christian Petersen, Interpreter, and Hans the Esquimaux, but as the brother of the latter was absent on a hunting excursion for an uncertain period,

Captain Stephenson wisely gave up the hope of obtaining his services for the benefit of the Expedition, and pushed on for the Carey Islands, where he joined company with the "Alert"; the two ships arriving there at midnight of the 26th July.

Carey Islands. Depôt and Notice. *Not printed.*

A depôt of 3,600 rations and a boat were landed on the S.E. point of the S.E. island, and a record deposited in a conspicuous cairn on the summit. The "Expedition" then proceeded, steaming, with as much economy of coal as possible, northward through a calm sea, with bright clear weather. With the exception of the many scattered icebergs there was no ice in sight from the summit of Carey Islands.

Whale Sound.

Passing between Hakluyt and Northumberland Islands, the ships were abeam of Cape Robertson by 8 P.M. of the 27th July. Ice apparently fast to the shore, completely closed Inglefield Gulf east of Cape Acland, but both entrances to the gulf were clear.

Port Foulke.

At 8 A.M. of the 28th July, five days and a half from leaving the anchorage of Upernivik, I had the satisfaction of seeing the "Expedition" at anchor near Port Foulke, with the entrance of Smith Sound perfectly clear of ice and none coming to the southward with a fresh northerly wind.

Lifeboat Cove, "Polaris" Winter Quarters.

While Captain Stephenson explored the head of Foulke Fiord to ascertain its suitability as a station for winter quarters for any relief vessel coming to our assistance, Commander Markham and myself proceeded in a boat to Littleton Island and Life Boat Cove, the scene of the wreck of the "Polaris." The cache mentioned by Dr. Emil Bessels and Mr. Bryant of the "United States North Pole Expedition" as the depository of certain instruments and boxes of books was very readily discovered, but contained nothing. Articles of clothing and numerous small caches containing seal and walrus meat were scattered about all over the small peninsulas in the neighbourhood of the late winter quarters, and near the ruins of the house, but apart from each other and without any protection, were found four or five boxes, each covered with heavy stones to prevent the winds moving them, and having the lids secured on by a rope. Besides one thermometer, unfortunately not a self-registering one, they contained scraps of skin clothing, old mitts, carpenter's tools, files, needles, and many small articles of the greatest use to the Esquimaux, but apparently they had not been disturbed since the abandonment of the station. A few books were found in the different boxes, and a copy of the log, or the actual log itself, from the departure of the vessel from the United States up to the 20th May the following year.

No pendulum, transit instrument, or chronometer was found. Three skin boats left on the shore, weighted down with stones, were in fair order. The smallest one was taken for conveyance to Cape Sabine.

Littleton Island Cairn. *Not printed.*

On returning to the "Alert" we landed at Littleton Island, and on the S.W. brow erected a cairn, and deposited a notice containing a short account of the movements and prospects of the Expedition up to that time. There was no ice in sight from a high station on Littleton Island; but the sportsmen roaming over the higher grounds on the main land reported on their return that they had distinguished an "ice-blink" to the northward.

Port Foulke as a Winter Station.

Port Foulke is at present the best known station for winter quarters in the Arctic regions. A warm ocean current, combined with the prevailing northerly winds, acting at the narrow entrance of Smith Sound, keeps the ice constantly breaking away during the winter, and causes an early spring and a prolific seal and walrus fishery. The moisture and warmth imparted to the atmosphere by the uncovered water moderates the seasons to such an extent that the land is more richly vegetated, and therefore attracts to the neighbourhood and supports arctic life in greater abundance than other less favoured localities. In addition to this great advantage—of obtaining an ample supply of fresh meat—connected as its waters are with the "north water" off Cape York, it can readily be communicated with every summer without more than the usual risks attending arctic navigation.

Cape Isabella.

On the morning of the 29th the two ships sailed across the strait for Cape Isabella, with fine weather; but as we approached the western shore a snow storm worked its way over the land from the interior, and reached us just as we arrived at the Cape. As the weather was so thick that no one on board the ships, except those employed in establishing the cairn and small depôt of provisions, could see its position, and there being therefore no reason for delaying the "Discovery," Captain Stephenson proceeded. The cairn was built on the summit of the outer easternmost spur of the Cape, at an elevation of about 700 feet from the water. On the boat returning on board at 5 P.M. I steamed to the northward for Cape Sabine, the wind having died away, but the weather continuing misty with snow.

First Ice sighted off Cape Sabine.

By 8 P.M., when we were 15 miles north of Cape Isabella, ice was sighted between us and the shore, and necessitated our keeping well out from the land.

Early in the morning of the 30th July, having run our distance for Cape Sabine I stopped steaming, and at 5 A.M. the mist clearing off I observed the "Discovery" near the land apparently beset with a close pack five or six miles broad; no ice in sight to seaward. As I did not wish the two ships to separate, and the calm weather being favourable, I bored through the pack, which, although apparently close, opened sufficiently to admit of the slow progress of the ship until we gained the land in company with the "Discovery" and secured the ships in a convenient harbour, named after Lieutenant Payer, the successful and energetic arctic traveller, two miles to the southward of Cape Sabine.

Port Payer.

A depôt of 240 rations was established on the southernmost of the islets in a convenient position for travelling parties, a cairn being built on the summit of the highest and outer one, and a notice of our movements deposited there.

Depôt of Provisions and Cairn on Brevoort Island. *Not printed*

The pack in the offing consisted of floes from 5 to 6 feet thick, with occasionally much older and heavier floes 10 to 12 feet thick intermixed with it, but all was very much decayed and honeycombed; still it could not be treated with the same impunity as the ice in the middle passage through Baffin Bay.

Pack off Cape Sabine.

I may here draw attention to the deceptive impressions inexperienced people naturally receive when from a lofty look-out station they observe a sea unbordered by ice. The distance from Littleton Island to Cape Sabine is only 25 miles. On a clear evening, from an altitude of 700 feet, with the land and horizon distinctly visible, no ice was in sight from the first-named place, and the prospects of the Expedition as to attaining a higher Latitude without trouble appeared to be precisely the same as when I looked over a boundless sea from the summit of one of the Carey Islands 100 miles to the southward, and yet the ships were twenty-four hours afterwards locked up by ice in a harbour near Cape Sabine.

Deceptive impression on seeing "Open water."

From Littleton Island the inexperienced observer would conclude that there was an open Polar Sea; from our present position he would as certainly conclude that his farther progress was for ever stayed, and that the sooner he looked for winter quarters the better.

The ships were detained at Payer Habour for three days watching for an opening in the ice, getting under way whenever there appeared the slightest chance of proceeding onwards, but on each occasion, being unable to pass Cape Sabine, were forced to return. This resting-place proved to be an excellent station, well protected against the entrance of heavy floes, possessing a lofty look-out, and deep navigable channels to the north and south through which to proceed to sea immediately the ice opened with a favourable westerly wind.

Detention at Payer Harbour.

Being advantageously situated near a prominent cape, where the tidal currents run with increased velocity, it is however subject to squally winds; but in icy seas during the summer, when awaiting the opening of the ice, they are rather an advantage than otherwise, striving, as they do with the sea currents, which is to be the chief worker in removing the impediments to a vessel's advance.

Early in the morning of the 4th of August, after several hours of light south-westerly winds, the main pack, while remaining perfectly close and impenetrable to the northward, moved off from the land to a sufficient distance to enable the ships to pass to the westward round Cape Sabine. In the hope of finding a passage on the western side of the island, of which Capes Victoria and Albert are the prominent eastern points, sail was immediately made, and we succeeded, with only one short detention, in advancing twenty miles along the southern shore of Hayes Sound, and securing the ships in a snug harbour. In the neighbourhood the sportsmen discovered a richly vegetated valley with numerous traces of musk-oxen and other game.

Advance up Hayes Sound.

Princess Alexandra Harbour.

Two glaciers coming from nearly opposite directions, which, instead of uniting in their downward direction, abut the one against the other, and maintain a constant warfare for the mastery, a never-ending grapple for victory, suggested the name of Twin Glacier Valley for the locality.

The ice in the sound was one season old, and decaying so quickly that if not drifted away it would in a week's time present no impediment to the advance of a steam vessel. On the 5th of August the strong tides and a south-westerly wind opened a channel to the N.W., and we gained a few miles in advance; but not wishing to expend much coal, were finally stopped in the light pack. After remaining sufficiently long to determine that the flood tide still came from the eastward, although the ebb or east running tide was apparently the stronger of the two, I pushed the ships through the pack towards the shore, and with Captain Stephenson ascended a hill 1,500 feet high. From this station, the appearance of the land giving no prospect of a channel to the northward, and,

Tides in Hayes Sound.

moreover, the westerly wind having set in in strength, which we expected would open a passage to the eastward of Cape Albert, we decided to bear up and return to the entrance of the Sound; accordingly the ships made a quick run under sail to Cape Albert, arriving off which the wind died away leaving the ice loosely packed. A clear space of water being visible along the shore of the mainland to the northward, and the coast between Cape Victoria and Cape Albert affording no protection, I ran the two ships into the pack under steam, with the hope of forcing our way through, but before midnight they were hopelessly beset; and the floe, to which the ships were secured at a distance of 100 yards apart, drifting rapidly towards an iceberg. Both ships were at once prepared for a severe nip, the rudders and screws being unshipped. At first the "Discovery" was apparently in the most dangerous position, but the floe in which we were sealed up, by wheeling round, while it relieved Captain Stephenson from any immediate apprehension, brought the "Alert" directly in the path of the advancing mass, which was steadily tearing its way through the intermediate surface ice. When only 100 yards distant the iceberg, by turning slightly, presented a broader front to the approaching ice, which then accumulated in advance of it to such an extent as to fill up the angle, and form, as it were, a point or bow of pressed up ice, sufficiently strong to itself divide and split up the floe, and act as a buffer in advance of the berg; and this it did in our case most successfully, our floe breaking up into numerous pieces. The ship herself escaped with a very light nip, and, sliding past the side without accident, was finally secured in the water space left in the wake of the iceberg by the faster drift of the surface ice.

Pass Cape Albert.

Beset in Pack.

The next twenty-four hours were spent in a constant struggle towards the shore through the pack, which fortunately consisted of ice seldom more than four feet in thickness, with occasional pieces up to twelve feet thick, formed by the over-riding and piling up of ordinary floes, and then cemented together by a winter's frost; the worn down rounded topped ice hummocks on these were from six to eight feet above the water-line. The icebergs, evidently derived from inferior glaciers, were from twenty to forty feet in height above water, and 100 yards in diameter.

Owing to the unsteady wind and the variable tidal currents we were unable to remain for long in any one pool of water—either the iceberg turned round and carried us with it to the exposed side, before we could change the position of the hawsers by which we were secured; or the pack ice, which was readily acted upon by the wind, drifting back the opposite way with any change, closed up the water space. Securing the ships in a dock in rotten ice in the presence of so many icebergs, was not advisable, and also would have carried the ships deeper into the pack to the southward. There was, therefore, no alternative before me but to get up full steam and dodge about as best we could, taking instant advantage of every change in our favour. The ships were seldom separated for long, and now as on all other occasions, they mutually assisted each other. The "Discovery" was handled by Captain Stephenson and her officers in the most masterly and daring manner, combined with great judgment, qualities essential in arctic navigation. She, as well as the "Alert," ran not a few hairbreadth escapes. Once in particular when in following us through a closing channel between an iceberg and heavy floe-piece, before getting quite past the danger she was caught and nipped against the berg, and had it not been for a fortunate tongue of projecting ice would certainly have had all her boats on the exposed side ground away from her. Fortunately, the moving ice pushed her clear, much in the same manner as it had done the "Alert" the previous day.

"Discovery" clearing a nip.

Having less beam than the "Alert," and a finer bow, with the very great advantage of an overhanging stem, the "Discovery" is better adapted for forcing her way through a pack. It will be difficult ever to efface from my mind the determined manner in which, when the bluff-bowed leading ship had become imbedded in the ice, which by her impetus against it had accumulated round and sunk under her bows, and a great quantity by floating to the surface again in her wake, had helplessly enclosed her abaft, the "Discovery" was handled, when advancing to our rescue; having backed some distance astern, for the double purpose of allowing the debris ice from a former blow to float away and for the vessel to attain distance sufficient for the accumulation of momentum with which to strike a second, coming ahead at her utmost speed she would force her way into the ice burying her bows in it as far aft as the foremast, the commanding officer on the bowsprit, carefully conning the ship to an inch, for had the ice not been struck fairly it would have caused her to cannon off it against ourselves with much havoc to the two. From the moment of the first impact the overhanging stem necessarily caused the ship's bow to rise three or four feet as she advanced from twelve to twenty feet into the solid floe and imbedded herself before the force of the blow was expended, and as the ship's

way was stopped, the overhanging weight, by settling down, crushed the ice down still further ahead. Frequently on these occasions her jib-boom was within touching distance of the "Alert's" boats! But after a little experience had been gained, such confidence had we in each other that there was not the slightest swerving in any one.

Steam Ships charging Ice.

Floes up to four feet in thickness, and in a soft state, that is melting, not freezing, may be charged with advantage, thicker or harder ice had better be left alone.

It speaks well for our chronometers, and the manner in which they are secured, that their rates were little affected by the frequent concussions on this and on many after occasions.

Cape Victoria.

By 8 A.M. on the morning of the 8th we had succeeded in reaching the land water off Cape Victoria, having sustained no more serious damage during this severe trial than sprung rudder heads, consequent on the frequent necessity of going full speed astern; all heartily glad to be out of the pack ice.

The two islands marked on the chart, on the authority of Dr. Hayes, as existing in the entrance of Hayes Sound are, as originally represented by the present Admiral Inglefield, in reality joined; the three capes named by the latter, north of Cape Sabine, are very prominent headlands, and readily sighted from a ship's deck from any position north of Littleton Island. There is no sign of an inlet along the very slightly indented coast line between his Cape Camperdown and Cape Albert. His Princess Marie Bay is the inlet north of the land in the middle of the sound, but whether that be an island or a peninsula remains to be determined; and his Cape Victoria is evidently one of the headlands on the present Grinnell Land.

Princess Marie Bay.

On altering original Names on the Chart.

It is necessarily an unthankful office to find fault with our predecessors; but navigators cannot be too careful how they remove from the chart names given by the original discoverers, merely because during a gale of wind a bearing or an estimated distance is a trifle wrong, and when the corrector or improver is also himself considerably wrong, and in fact produces a more unreliable chart than the first one, he deserves blame. The names given to the headlands undoubtedly discovered by Admiral Inglefield should not have been altered by Drs. Kane and Hayes, each of whom published very misleading delineations of the same coast.

Hayes Sound.

It is as yet uncertain whether Hayes Sound is a channel or not. The flood tide coming from the eastward—the apparent continuity of the western hills and the absence of berg pieces or heavy ice high up the sound, would lead to the supposition that it was closed; but considering the general configuration of the neighbouring land and the fact that the ebb or east running tidal current was stronger than that during the flood, but this the westerly wind might have occasioned, and the numerous Esquimaux remains which are usually found in channels, there seems no reason why we may not reasonably expect the existence of a narrow opening leading to a western sea. The very decayed state of the ice would be the natural result either from strong tidal currents in a long fiord or the increased strength of the ebb tide occasioned by an easterly set from the Polar Sea.

On passing what is called on the chart Cape Victoria, Commander Markham landed to ascertain the state of the ice, but a very thick fog and snowstorm coming on he was obliged to return. The ships were secured to the floe in Princess Marie opening which consisted of the last season's ice which had not cleared out: it was very much decayed but sufficiently strong to prevent our forcing our way through it—and in fact when pressing in with the flood tide it became so compact that at one time the ship was in danger of being driven on shore. At high water it opened and we succeeded in crossing the bay and securing the ships to the land ice in Franklin Pierce Bay on the southern shore of Grinnell Land.

Franklin Pierce Bay.

Not printed.

On the morning of the 9th August, after depositing a record in a small cairn erected on a spur of the limestone hills, 200 feet above the sea, on the west side of the bay, one and a half miles east from Cape Harrison, we gained three miles of easting; but, being unable to round Cape Prescott, were compelled to make the ships fast to an extensive floe extending from that cape to Norman Lockyer Island, which stopped all further progress.

Walrus Shoal.

Franklin Pierce Bay, which is about three miles broad and two and a-half deep, and in which we found an unbroken smooth floe of one season's ice, is protected from any heavy pressure by Norman Lockyer Island and the Walrus Shoal, situated one mile further to the eastward; it is therefore a fit position for winter quarters. But, as far as we could judge during our short stay, there is very little game procurable in the neighbourhood.

The shoal was so named in consequence of the numerous ancient remains of Esquimaux found on the island, who, by the number of walrus bones found lying about, had

evidently subsisted principally on these animals. At present this neighbourhood may be considered as the northern limit of their migration, only a very few being seen farther to the north.

The comparatively sluggish tidal motion at the entrance denotes that the coast lies out of the main run of the stream, and if so, Princess Marie opening will probably prove to be merely a deep inlet.

Tidal Streams in Smith Sound.

In the extended basin of Smith Sound the southerly current and the tidal streams run in a direct line between Cape Frazer and Cape Isabella, producing eddies and accumulating the ice in any open water space on either side of that course.

August being proverbially a calm month in the arctic seas, and the western mountains protecting the coast from winds blowing off the shore, the ice is inclined to hug the land, and, except during strong westerly winds, a large amount of patience must be exercised by any one striving to advance to the northward.

Pack in Smith Sound.

The pack in the offing in the main channel consisted principally of old floes which did not clear out of the sound during the previous season, mixed with light one-season ice, formed in Kennedy Channel and its numerous bays, and in Hall's Basin. Amongst these were scattered numerous icebergs discharged from the Humboldt Glacier, and the few smaller ones on the eastern shores, and here and there a heavy blue-topped hummocky floe of ancient ice from the arctic basin but of unknown thickness. By the scarcity of these the main drift of the northern ice is apparently in some other direction.

During the fortnight we were delayed in this neighbourhood, in the middle of August and the height of the arctic summer, a constant watch was kept on the pack, and as often as possible from high elevations, from which we were able to distinguish even the eastern shore, with its glacier and heavy barrier of fringing icebergs. Although small openings were seen occasionally, I am satisfied that north of Cape Sabine it was at no time navigable to the smallest extent, and that any vessel which endeavoured to force a passage through the middle ice here, where it is drifting steadily towards an ever-narrowing opening, as many have succeeded in doing in the more open sea of Baffin Bay, would decidedly be beset in the pack and be carried with it to the southward.

Cape Hawks.

We were delayed near Walrus Shoal for three days, unable to move more than a mile in any direction, until the 12th August, when, during a calm, the ice set off shore with the ebb tide, and allowed us without much trouble to steam past Cape Hawks, and between it and Washington Irving (or Sphinx) Island—a very conspicuous landmark, but here the ice prevented any further movement, the flood tide closing in the channel by which we had advanced.

Not printed. Depôt of provisions landed. Cairns on Washington Irving Island.

A large depôt of 3,600 rations of provisions was landed on the southern side of Cape Schott, and a notice of our progress deposited in a cairn on the summit of Washington Irving Island. Two cairns were found there, but they contained no documents, and were much too old to have been built by Dr. Hayes in 1866, the only time any traveller has journeyed past the position.

Dobbin Bay.

On the western shore of Dobbin Bay there is no shelter obtainable, and the tides run with much greater rapidity than off the coast farther to the westward.

During the next ebb tide, 13th August, after blasting a passage through a neck of ice, I succeeded in conducting the ships to the eastern shore, and docking them in an extensive floe four miles N.W. of Cape Hilgard.

Prince Imperial Island. Empress Eugénie Glacier.

A mile north of our position was an island, having a channel half a mile broad between it and the eastern shore of the bay, named Prince Imperial Island. The land ice which had not broken out this season extended from the island in a westerly direction across the bay. Several small icebergs were frozen in at the head of the bay, where there are some large discharging glaciers named after the Empress Eugénie.

Scarcity of Game.

The land, as far as our explorations went, was very bare of game, and not well vegetated. A floe of last season's ice was observed in the bay, between Cape Hilgard and Cape Louis Napoleon, but off each of those headlands the piled-up ice foot denoted very heavy recent pressure from the eastward.

On the evening of the 15th August, after considerable labour, we succeeded in blasting and clearing away a barrier which separated the ships from a water channel leading beyond Cape Louis Napoleon, but so narrow was the channel that, notwithstanding the extreme care of Captain Stephenson, the "Discovery" took the ground for a few minutes whilst steaming between the ice and the shallow shore.

Off Point Joy.

By 8 A.M. of the 16th we had advanced to within five miles of Cape Frazer, but here we again met with a block. Calm weather and spring tides caused much and

constant movement in the ice, the main tendency being to drift to the southward at the rate of about five miles a day.

Nature of the Pack.

The character of the pack had changed considerably, few icebergs were seen that were not aground, and the floes consisted principally of old hummocky pieces pressed together, of from twelve to twenty feet in thickness, the surface being studded over with worn down hummocks of a blue bottle-glass colour, which denotes great age. In such ice it was impossible to cut into dock on account of the time it would occupy, even had we been provided with saws of sufficient length. Our only possible safety lay in keeping close in shore of grounded icebergs, but in doing so the two ships were obliged to separate. The "Alert" securing to one, and the "Discovery" forcing herself in between three smaller ones farther in shore.

In danger of a nip.

On the two following days, during which the ice continued to drift to the southward and westward, the constant movement of the heavy floes, nipping together with great force, like the closing of a gigantic pair of scissors, between which, if once caught, the ships would have been instantaneously crushed, caused much anxiety, and necessitated constant watchfulness and much labour on the part of the officers and crew; and all were much distressed at losing three or four miles of the ground previously gained.

The rudders and screws were constantly being shipped and unshipped, the midship boats were obliged to be turned inboard, on account of the ice touching their keels, and steam, when not in use, was always kept ready at twenty minutes notice. Beyond wrenching the rudder-head, no serious damage occurred.

On the 19th, the highest spring tide, the ice near us become more open; and from a high station on Mount Joy I saw that we could at least regain our lost station, and might get further north.

Knowing that this was our last chance during the present tides, and until the strong westerly winds set in, and the pack having opened for the first time, I risked boring my way into the pack for two miles, and by so doing entered a channel round Cape Frazer which had long been considered as one of the most difficult milestones to pass on our passage north.

Cape Frazer.

Cape John Barrow.

By 9 P.M., after a few hours delay during the flood tide which brought the ice inshore again, we were fairly in Kennedy Channel, secured to a floe off Cape John Barrow; only two days later in the year than when the "Resolute" was blown out of winter quarters at Melville Island in 1853, and with a fortnight of the navigable season still before us.

Between Scoresby Bay and Dobbin Bay there is no protection obtainable except inside grounded icebergs; none of the shallow bays are deep enough to shelter a ship from the pressure of heavy ice.

Soon after midnight the ice moved off shore, opening a passage, and again allowed us to proceed; the water spaces becoming more frequent and larger as we advanced northward. Passing the mouth of a large bay about ten miles deep; after making a very tortuous course through the ice and many narrow escapes of being driven to the southward again in the pack, we reached what we supposed to be Cape Collinson, the second of two capes to the north of the large bay, which must be intended to be represented on the chart as Scoresby Bay. But as Cape Frazer is placed eight miles and Scoresby Bay twenty miles too far north and the rest of the western land very incorrectly delineated on the charts, it is difficult to say where we arrived, and yet for the present it is necessary for me to describe the advance of the Expedition by reference to the published charts. I shall, therefore, continue to do so with an occasional necessary reference to our correct Latitude.

Cape Collinson.

Error of charts.

Joiner Bay.

Richardson Bay.

Between Cape Collinson and Cape McClintock, the north point of Scoresby Bay, is a slight indentation in the coast from half to three quarters of a mile in depth, but affording no protection. North of Cape Collinson the land trends slightly to the westward, and about three miles north of the cape turns sharp to the west forming Richardson Bay which is much deeper than represented, probably four miles broad and six deep.

Ships stopped off Cape Collinson.

A heavy iceberg firmly aground two miles from the land in the shallow bay north of Cape Collinson, which had evidently never moved this season, prevented a compact floe from floating off shore. The same iceberg caught all the ice that streamed down the west coast and round Richardson Bay, guiding it out towards the S.E., away from Cape Collinson, off which, and between it and the iceberg, was navigable water. In this pool the two ships were secured, watching for an opportunity to get north, and during the forced delay employing our energies in trying, by blasting, to unlock the land ice from the berg, and let it drift south, with the hope of releasing the ice to the northward; but perhaps it is fortunate we did not succeed, as, by so doing, if the ice in the offing had not

opened at the same time, our principal protection might have been lost, the iceberg itself being too small to form a pool under its lee sufficiently large for both ships, even had it been for one.

Depôt landed.

A depôt of provisions was landed at Cape Collinson for our future travellers bound to the southward along the coast.

Current in Kennedy Channel.

The current was observed to run with greater rapidity to the southward than in the broader part of Smith Sound. During each flood-tide about five miles of ice drifted past us; for four hours of the ebb it remained stationary; thus about ten miles of ice drifted south daily, adding to the accumulation in the basin of Smith Sound, unless, as is probable, it is carried as quickly into Baffin Bay through the southern entrance.

On the north side of each point on this shore the ice had piled up a wall-like barrier from 20 to 30 feet high, but elsewhere there was not much display of pressure.

Attempt the pack.

On the morning of the 21st August, the water channels in the middle of the straits looking very inviting, we made a start at the top of high water, but were led by the ice so much out from the land, that I returned to our friendly protecting floe and iceberg until the next tide, first endeavouring to clear the nip of one against the other by ramming; but finding that it would cost too much in coal and shake of the ship to clear it completely, and too much powder to blast it away, I gave up the attempt, after consultation with Captain Stephenson, and considering that the constant open channels in the offing denoted more water farther off.

Advance up Kennedy Channel.

The two ships started again at 9 P.M., just before low water, and after a troublesome passage through about three miles of close heavy floe pieces, we passed into open leads of water, extending to the N.E. up the straits. A bitter northerly wind, accompanied with mist and snow, freshening at the same time, carried the ice with great rapidity to the southward, and obliged us to beat to windward under steam and fore and aft sails, tacking frequently to avoid the heaviest streams of ice. After this snowstorm, the land remained covered with snow for the season.

Cape Lawrence.

By noon of the 22nd, after buffeting against a strong breeze, we succeeded in weathering the northern headland of the largest bay on the west coast, named on the latest charts Carl Ritter Bay, but agreeing, by Latitude and relative position with the neighbouring land, with the north part of Richardson Bay. In this part of the channel there was very little ice, but three or four miles further north a heavy pack extended across towards Crozier Island, and obliged us to proceed in that direction.

In the evening, the wind lulling, I took in the fore and aft sails, and steered through the most open channels to the northward, passing to the westward of Franklin Island, and at midnight we were abeam of Hans Island with perfectly clear water between us and the eastern land; but streams of ice prevented our approaching the western shore.

No deep inlet answering to the Carl Ritter Bay of the charts exists in its given Latitude.

Cape Cracroft.

Stopped by ice at Cape Morton.

Bessels Bay

Steaming to the northward I endeavoured to close the western shore south of Cape Cracroft, but the ice prevented our doing so, and forced me to bear up to the eastward for Cape Bryant. Passing which I found the pack extending across from Cape Morton and Joe Island to Cape Lieber, with a south-westerly wind constantly adding to it by driving more ice to the northward through Kennedy Channel. The "Discovery" then landed a depôt of 240 rations at Cape Morton for use of any travelling party exploring Petermann Fiord, and the ships beat back to Bessels Bay, in the entrance of which we obtained a sheltered anchorage to the north of Hannah Island.

View of Robeson Channel.

On the 24th, the south-west wind still continuing, which I knew would open the ice on the western shore of Hall's Basin, I ascended Cape Morton. At an altitude of 2,000 feet it was perfectly calm, with a clear sky. The prominent capes of the channel were clearly visible—Cape Union seventy miles distant, and Cape Sumner fifty miles, the one locking in beyond the other to within five degrees. All the west coast of Kennedy Channel, up to Cape Lieber and Lady Franklin Sound, was clear of ice, with navigable water through the ice streams in the middle of the channel far to the northward. From Joe Island to the north, and east to Polaris Bay, the ice was closely packed, but between Cape Lupton and Beechy was more open. Hurrying to the boat the ships were signalled to get under way, and we ran quickly to the northward across the channel under sail. Five miles north of Cape Lieber the pack obliged me to enter Lady Franklin Sound, on the northern shore of which an indentation in the land gave promise of protection. On a nearer approach we discovered a large and well protected harbour inside an island immediately west of Cape Bellot, against which the pack ice of the channel rested. Here the ships were secured close to the shore on the morning of the 25th August.

Cape Lieber. Lady Franklin Sound.

On entering the harbour we had the satisfaction of sighting a herd of nine musk-oxen, all of which were killed; our joy at the good luck of the sportsmen and ourselves being greatly increased by the news that the vegetation was considerably richer than that of any part of the coast visited by us north of Port Foulke, the Elysium of the Arctic regions. Arrival at Discovery Harbour. Musk-oxen.

Finding that the harbour was suitable in every way for winter quarters, and the abundance of the spare arctic vegetation in the neighbourhood giving every promise of game being procurable, I here decided to leave the "Discovery" and to push forward with the "Alert" alone.

Owing to our high northern position, although the sun was still above the horizon at midnight, its altitude at noon was too low to affect the temperature much, consequently after the 20th August the temperature of the air remained steadily below freezing point for the winter, and the young ice was forming at midday much earlier than it does in more southern Latitudes. Notwithstanding this, arctic navigation depends so much upon the wind, that I considered that the transient arctic season of twenty days duration was still at its height. The ice in Robeson Channel was well broken up, moving up and down the strait with the change of tide, and only waiting for a wind to open a passage along shore. Low temperature.

Having strengthened my crew by embarking Lieutenant Wyatt Rawson and seven men belonging to the "Discovery," forming one travelling sledge party, on the morning of the 26th August the two ships forming the Expedition, the officers and crews of which had worked so harmoniously and successfully together, separated; those embarked in one, if the published charts and the statements of our predecessors proved correct, having the cheering feelings of in all human probability successfully completing the chief task assigned us, but the others, although elated at the prospects of their comrades and partaking generally in the inspiriting feelings, having a desperate fight to conquer the sensation of being left behind to play what they could not but consider a secondary part in the general programme. "Alert" and "Discovery" part company.

On arriving at the entrance of the harbour the main pack was found to have closed in against the shore and completely filled up Lady Franklin Sound; some small floes streaming rapidly into Discovery Harbour. In endeavouring to keep the ship clear of these, she touched the ground at the top of high water and hung there for half an hour when, fortunately, by lowering the boats and lightening her a little, she floated again without damage. During the afternoon at low water the pack, which apparently uninfluenced by wind, had been moving to the southward the whole day, but fastest during the flood tide, drifted slightly off the land. Immediate advantage was taken of the welcome opening which enabled us to proceed north, but on reaching Point Murchison, the pack extending completely across the strait, prevented all farther progress; there was therefore nothing for it but to return to "Discovery Harbour," where the ship was again secured at the entrance ready to advance at the first opportunity. Delayed at Discovery Harbour.

On the 27th we experienced very light N.E. winds. The ice in the channel continued to move to the southward, except during the height of the ebb tide, when it was either stationary or set slowly northward, but not sufficiently so to open a navigable passage, although just before high water, it appeared so ready to move that I was induced to recall the skating parties to the ship and keep the steam up.

On the 28th the ice was decidedly more open, and we were just about to move at 11 A.M. the commencement of the north running tide, when a thick fog enveloped us, and, hiding everything at more than twenty yards distance, effectually prevented our moving. Later in the afternoon it cleared off, but it was now low water, and on trying to move the ship I found that, although afloat, she was within a basin, surrounded on all sides by a raised embankment of mud, so, with the tantalizing prospect of an open channel before us, we were forced to remain until the rising water enabled the lightened ship to pass over the obstacle. Hoisting up the boats and signalling a final "good-bye" to the "Discovery," we succeeded in advancing to within a mile of Cape Beechy, fifteen miles N.E. of Discovery Harbour, when in a tussle with a heavy floe-piece, the rudder head—which had been badly sprung some days before—became so injured that the rudder was nearly useless; at the same time the pack was sighted pressing tight in against the cape on the northern side; I therefore secured the ship inside some grounded ice and shifted the rudder. Cape Beechy.

While waiting at this part of the coast the sportsmen were fortunate enough to capture three more musk-oxen, a very welcome addition to our supply of fresh meat. Musk-oxen.

On the 29th the pack remained closed in to the northward of Cape Beechy until noon, when, at about the time of high water, from the summit of the cape, I observed it opening. The ship was immediately signalled to advance, and, picking up my boat on the way, we succeeded in reaching Lincoln Bay, but not without having to run an exciting and rather anxious neck-and-neck race with a heavy floe, which, setting in towards the

beetling precipitous cliffs of Cape Frederick VII, forming the south point of the bay, threatened to prevent our progress.

Lincoln Bay.

At the entrance of Lincoln Bay, which otherwise is much exposed, some very heavy floe bergs were aground on a bank, and they must to a great extent keep heavy ice from forcing its way into the bay during a south-easterly wind, in which direction the bay is perfectly open. The head of the bay, which appeared from a distance to be well vegetated, was filled with pack ice consisting of numerous small floe pieces less than a quarter of a mile in diameter intermixed with "rubble" or "boulder" ice, now all cemented so firmly together with this season's frost that we had great difficulty in clearing away a dock for the ship.

Depôt of provisions landed.

On the 30th a depôt of provisions of 1,000 rations, for the use of travelling parties, was landed on the north shore of the bay. Soon after high water, the ice having opened out considerably, we proceeded to the northward; but, in doing so, some large floe pieces of unusually heavy ice obliged me, much to my regret, to stand out some three miles from the land, thereby risking the ship being beset in the pack which I was most anxious and careful to avoid happening. On all occasions of viewing the ice in Robeson Channel, since it was first seen from Cape Morton, I had invariably noticed lanes of water stretching S.E. and N.W. across the channel from about Cape Lupton on the Greenland shore, to Cape Frederick VII. on the west side, due probably to this being the narrowest part or neck of the channel, and the ice jamming across the narrowing space north and south of it, according to the direction of pressure. Consequently, when at 3 P.M. the ice prevented any farther advance, observing many pools of water near us, and having two hours of the north-running tide favoured by a light air still due, instead of returning to the safety of Lincoln Bay, I waited at the edge of the pack, in the hope of its opening. But in this I was disappointed, for at 4 P.M., having just sufficient warning to enable me to pick out the safest looking place near us, that is, to get as far away as possible from the heavy ice, it completely encircled the ship, and she was hopelessly beset in a very heavy pack, consisting of old floes of 80 feet in thickness, and from one to four miles in diameter, the intervals between them filled with broken-up ice of all sizes, from the blue-ice rounded hummocks which were sufficiently high above the water-line to lift the quarter boats bodily as they passed underneath, whilst grinding their way along the ship's side, down to the smaller pieces which the previous nipping together of the heavy floes had rounded and polished like the boulders and pebbles in a rapid river. Intermixed with the pack, fortunately for us, was a vast collection of soft pats of sludge-ice formed during the last snowfall: this, if squeezed together before it is properly hardened into ice, forms into plate-like masses with raised edges, each piece, whenever moved, assisting to round its neighbour.

Caught in the pack off LincolnBay.

Increasing thickness of ice as we advanced north.

Since meeting the ice off Cape Sabine I had noticed a gradual but considerable change taking place in the appearance and formation of the floes. The heaviest that we first encountered were not more than eight or ten feet in thickness. Off Cape Frazer were a few more ancient pieces, estimated at the time as being twenty feet thick, but we now know that that was far short of the correct measure. But up to the present time, when the main pack consisted of heavy ice, I had failed to realize that, instead of approaching a region favoured with open water and a warm climate, we were gradually nearing a sea where the ice was of a totally different formation to what we had ever before experienced, and that few arctic navigators had met, and only one battled with successfully; that in reality we must be approaching the same sea which gives birth to the ice met with on the coast of America by Collinson and McClure, and which the latter, in 1851, succeeded in navigating through in a sailing vessel for upwards of 100 miles, during his memorable and perilous passage along the N.W. coast of Banks Land, from Prince Alfred Cape to the Bay of Mercy, but there sealed up his ship for ever; which Sir Edward Parry met with in the same channel in 1820, but with the more difficult task before him of navigating against stream and prevailing wind, was forced to own conquered even him and his experienced companions; which, passing onwards to the eastward down McClintock Channel, beset, and never afterwards released, the "Erebus" and "Terror" under Sir John Franklin and Captain Crozier; and which, intermixed with light Spitzbergen ice, is constantly streaming to the southward along the eastern shore of Greenland, and there destroyed the "Hansa of the German Arctic Expedition.

As our only hope of pushing north against the general set of the current, to say nothing of the extreme hazard of remaining in such a pack, consisted in regaining the shore, both boilers were lighted and full steam kept ready, in order to take immediate advantage of any opportunity that might occur. During the night, at the top of high water, the pack, which previously had been drifting in a compact body to the southward, eased a little near the edge of the large and deep floating floes, in consequence of a

difference in the force of the surface and undercurrent; but before we were able to clear away a space of water at the stern sufficiently large to enable the rudder to be shipped, the ice closed, and obliged us to dismantle again. At the full height of the ebb current the pack again tried its best to open, but with the same result.

Escape from the pack.

Fully expecting a change at low water, with much labour a working space was cleared under the stern, but owing to the spare rudder being very badly balanced we nearly lost our opportunity. At last, with the same momentary slacking of the ice pressure as occurred at the top of high water, with a greater pressure of steam than had been exerted even during the official steam trial, the ship commenced to move; when, by advancing and retreating, a water space was gradually formed in which the ship could gain momentum, and at last we pushed our way bodily into ice not quite so close, and succeeded most providentially in reaching the shore in Lincoln Bay. Had we been delayed another five minutes the ship would have been caught in the pack during the heavy gale which set in from the S.W. the same evening, and continued for two days; and which, in fact, by forcing the pack to the N.E., out of the Robeson Channel, enabled the ship to pass Cape Union without any trouble.

Value of Steam Vessels in ice navigation.

During the late struggle, as well as on many previous occasions, it was noticeable how futile the efforts of the crew were to clear away the ice on the bow or quarter which impeded the movement of the ship, compared to the enormous power exerted by the ship when able to ram her way between the pieces even at ordinary speed. Thus, steamers are enabled to penetrate through a broken-up pack which the old voyagers, with their sailing vessels, necessarily deemed impassable. At the same time there is a limit to the risks which are advisable to be run; no ship has yet been built which could withstand a real nip between two pieces of heavy ice.

On the afternoon of the 31st August, shortly after the ship was secured in her former position to the firm ice in Lincoln Bay, the wind gradually freshened from the S.W., blowing slightly off the land, accompanied with a snow-storm and a threatening appearance of the weather.

S.W. gale.

So far as we could distinguish through the snow, the main pack was driven by the gale to the northward up the channel, but knowing that it would take some hours to produce a navigable passage past Cape Union, I waited until the morning of the 1st September, when with steam at hand ready if requisite, we passed up the straits, running before a strong gale 9½ knots an hour, between the western shore and the pack, which was driving quickly to the northward, at about three miles distance from the land.

"Alert" reaches the highest Latitude hitherto attained.

By noon, having carried Her Majesty's Ship into Latitude 82° 24′ N., a higher Latitude than any vessel had ever before attained, the ensign was hoisted at the peak.

On hauling to the westward at the northern entrance of Robeson Channel, we lost the wind under the lee of the land and were obliged to furl sails and proceed under steam; at the same time the breadth of the navigable water channel was much contracted, until off Cape Sheridan the ice was observed to be touching the shore.

Cape Sheridan.

In Robeson Channel proper, except where the cliffs rise precipitously from the sea and afford no ledge or step on which the ice can lodge, the shore line is fronted at a few paces distance by a nearly continuous ragged-topped ice wall from fifteen to thirty-five feet high. It is broken only opposite the larger ravines, where the soil carried down by the summer flood has, by accumulating, shallowed the water sufficiently to catch up the drifting ice as it passes, and form a line of more isolated ice hummocks. Here the continuity of the ice wall is occasionally broken.

Ice wall.

Floe-bergs.

But on leaving Robeson Channel, immediately the land trends to the westward, the coast line loses its steep character, and the heavy ice is stranded at a distance of 100 to 200 yards from the shore, forming a fringe of detached masses of ice from 20 feet to upwards of 60 feet in height above water, aground in from eight to twelve fathoms water, and except where the coast is shallow extending close into the beach line. The average measurement of the ice in thickness as it floated is 80 feet, and it always breaks from the salt water floe of which it originally formed a part in pieces of slightly greater dimensions in horizontal measurements.

Stopped at Cape Sheridan.

On finding the ice close in at Cape Sheridan, having made good 25 miles of northing since leaving Lincoln Bay in the morning, my only alternative was to secure the ship inside this protecting barrier of ice, where she was accordingly placed during the afternoon, and a depôt of provisions of 2,000 rations, established for the use of travelling parties,

The weather remained thick until the evening, when I obtained a good view from a station about 300 feet above the sea level.

The coast line continued to the N.W. for about thirty miles, forming a large bay

bounded by the United States' range of mountains—Mounts Marie and Julia and Cape Joseph Henry, named by the late Captain Hall, are so conspicuous that it was impossible to mistake their identity although more than thirty degrees out in bearing on the chart. No land was to be seen to the northward although our wishes leading to the thought, we still hoped that the heavy clouds in that direction might hide it from our view. But considering the character and movement of the ice I was reluctantly forced to admit that it gave convincing proof that none existed within a reasonable distance, and that we had arrived on the shore of the Arctic Ocean finding it exactly the opposite to an "Open Polar Sea."

Pack off Cape Sheridan.

The pack ice extended close in to Cape Sheridan and the shore to the westward of it, a pool of water being noticed on the east or lee side of each projecting point in the bay which the intervening ice effectually prevented our thinking of reaching.

To the eastward the channel by which we had advanced was completely blocked by the return of the ice, and the ship, although fairly protected, was thoroughly embayed by the pack. The last snow fall had covered the land completely to a depth of from six to twelve inches and the low sloping hills formed anything but a cheering landscape.

S.W. gale.

During the night the wind again freshened considerably from the S.W., and in a squall carried away the hawsers by which we were secured and obliged me to let go a bower anchor, this falling on gravel did not bring the ship up until she had drifted half a cable's length outside the barrier of "floe-bergs" from which the pack was slowly retreating towards the N.E. The gale continued all night and drove the pack two miles off shore, but its constant motion to the eastward kept it tight in against Point Sheridan and cut us off from all chance of advancing.

I was much struck at the time by the pertinacity with which the pack kept its ground during this severe gale, and could not help fearing that there would be little chance of its opening out sufficiently to allow us to advance much farther this year; but knowing well the occasional inexplicable uncertainty in its movements we still hoped for the best.

On the morning of the 2nd September the wind suddenly shifted from S.W. to N.W., bringing the pack rapidly in towards the land, and causing the ship to swing broadside on to the heavy stranded ice; fortunately, the barometer having indicated the probability of a change occurring, steam had been kept ready, and after a considerable amount of manœuvring the anchor was weighed. Our protected dock was so small, and the entrance to it so narrow and encumbered with ice, that it was with extreme difficulty, much labour, and no trifling expense in broken hawsers, that the ship was hauled in stern foremost, with the united force of the wind and flood tide pressing at right angles to the course. It was a nice question whether the ice or the ship would be in first, and my anxiety was much relieved when, as the whole northern pack reached the outside of our friendly floe-bergs, I saw the ship's bow swing clear inside into safety, and the pack, instead of doing us an injury, considerably strengthen our protecting outwork by forcing new pieces on shore; at the same time, we could not help foreseeing that by so doing our chance of advancing when we wished was proportionately lessened. The danger we had so narrowly escaped from was forcibly represented to us all, as the pack, with irresistible force, swept past us to the eastward at the rate of a mile an hour, and constantly added to the accumulated masses outside.

Formation of a floe-berg.

The projecting point of a heavy floe would first ground in from ten to twelve fathoms of water; then the outer mass, continuing its course, unable to stop its progress, would tear itself away from its cast-off portion. The pressure, however, still continuing, the severed piece was forced, and frequently by the parent mass itself, up the steeply inclined shore, rising slowly and majestically out of the water ten or twelve feet above its old line of flotation, and remaining usually nearly upright. The motion was entirely different to that produced when two ordinary floes some four or six feet thick met together; then, the broken edges of the two pieces of ice, each striving for the mastery, are readily upheaved and continually fall over with a noisy crash. Here, the enormous pressure, raising pieces, frequently 30,000 tons in weight, in comparative silence, displays itself with becoming solemnity and grandeur. What occurs when two eighty-foot floes meet we cannot say; but the result, as far as a ship is concerned, floating as the ice does higher out of the water than herself, would be much the same as the closing together of the two sides of a dry dock on the confined vessel.

Ice in the offing.

For the next three days we experienced light westerly winds; the ice remained close in to the coast, moving generally to the south-eastward, but occasionally stopping and closing up towards the N.W. during the ebb tide. During the flood, pools of water, half a mile long by a quarter broad, frequently formed on the south-east side of the larger floes, but they were always completely isolated from each other by several

miles of heavy ice. Although a few large floes could be distinguished in the offing, the pack within five miles of the land usually consisted of floes of less than a mile in diameter, with a very large proportion of rubble ice evidently broken off the large floes as they forced their way past the points of land to the N.W. of us, the whole forming as rough a road for sledge travelling as could well be imagined.

Sledge sent to explore the coast to the N.W.

At this period, although all regular navigation was evidently at an end, I was naturally most anxious to move the ship from her exposed position before the setting in of winter, but the quickly advancing season warned me that no movement should be made without a reasonable probability of attaining a sheltered position. Accordingly, Commander Albert Hastings Markham and Lieutenant Pelham Aldrich started on the 5th of September to look at a bay seen from our hill station about eight miles distant from us to the westward. They reported that it was a well-sheltered harbour, thickly coated with this season's ice, but that the continuous wall formed by the grounded floe-bergs across the entrance to it would effectually prevent our entering.

After this report, with the temperature remaining steady between +20° and +10°, and the barrier of grounded ice, which, although protecting, effectually imprisoned us, having increased in breadth to seaward for 200 yards, each heavy piece being compactly cemented in amongst its neighbours by the lighter broken up rubble ice, which was carried in by the tidal current, and frozen into position by the low temperature, I decided to commence landing such provisions and stores as were hampering the decks of the ship, and which would not be required during the winter, should we fortunately be able to move into safer quarters.

Second exploring journey.

On the 6th, 7th, and 8th of September, we experienced a heavy fall of snow, which, bearing down the young ice by its accumulated weight, allowed the water to percolate upwards, and render the floe very wet and unfavourable for travelling on. But not expecting any decided movement of the ice during the neap tides, and having secured the ship with a bower anchor and cable to the shore, and landed an ample depôt for the support of any travelling party in the event of accident to the ship, which at the time did not appear improbable, Lieutenant Pelham Aldrich, accompanied by Captain Feilden, R.A., and Dr. Edward L. Moss, started on a pioneering journey towards the north, and Lieutenant Wyatt Rawson towards the south. The latter returned after two days' absence, having found the cape three miles from the ship—forming the entrance to Robeson Channel impassable by land, on account of the steepness of the cliffs; and by sea, in consequence of the continual movement of the broken pack, which prevented him venturing on it, even with a boat. Lieutenant Aldrich's party returned after an absence of four days. He had succeeded in establishing a depôt of provisions, and exploring the coast line for a distance of twenty miles to the north-west. The travelling was found to be unusually heavy, owing to the very rough state of the ice, and the deep snow, with its sticky wet foundation of sludge; indeed, so bad was it that although only laden with half weights, all three sledges broke down. The young ice in the few patches met with was too weak and treacherous to admit of heavy sledges journeying over it; one sledge broke through, and was only recovered with much difficulty.

See page 64.

See page 63.

Water channel round Cape Sheridan.

On the 10th September a westerly wind blowing off shore, force 4, combined with the ebb tide, opened for the first time since our arrival here, a narrow channel between the grounded ice and the pack extending for half-a-mile beyond Cape Sheridan, but trending out to seaward. On the 11th, the same wind continuing, the channel widened out until it was a mile broad, and extended for six miles to the westward, ending two miles distant from the shore. As this offered an opportunity of advancing a large depôt of travelling provisions and boats by water, Commander Markham started with a strong party, having first to launch the boats across the heavy barrier of ice within which the ship was sealed up, apparently frozen in for the season.

Boats and provisions sent to the westward.

See page 78.

No land to northward.

The sky being fairly clear, this was the first day on which we were able to pronounce decidedly concerning the northern land reported to exist by the "Polaris." After a constant watch, and carefully noting the movement of the darkened patches, I was now with much reluctance forced to admit that no land existed to the northward for a very considerable distance. As seen through the light haze the dark reflection of the sky above the detached pools of water in the offing, in strong contrast by the side of the light reflected from the close ice, which in a great measure is similar to the bright glare reflected from a large sand flat, creates a very decided appearance of land when there is a mirage; indeed, sufficiently so as to deceive many of us when so anxiously expecting and hoping to see it. We, therefore, cease to wonder at the casual look-out men from the "Polaris" being mistaken, but the more experienced on board should not have allowed themselves to be so readily misled.

S.W. gale.

During the 13th and 14th the wind from the S.W. gradually freshened, until on the latter day it was blowing a very strong gale, force 10 in the squalls, and evidently extending over the whole extent of Kennedy Channel; for the swell from the open water which it had produced on the weather shore extended round Cape Rawson, and reaching our position broke up all the light ice formed this season, and drove it out to sea, the large grounded floe-bergs alone remaining, with clear passages between them, through which we could have readily passed if requisite; but the main pack to the westward, although the channel leading to seaward had extended to between ten and twelve miles distance from us, still remained fast to the shore at a distance of about six miles from the ship.

Return of depôt party.

The ship was secured by a bower cable, stern to the shore, one side resting against a large floe-berg, and bumping slightly against it with the swell. During the evening it was blowing furiously, with a blinding snow drift, and whilst I was thinking of the uncomfortable state of the travellers in the tents in such a gale, I observed Commander Markham arrive abreast the ship. Although we were within 120 yards of the shore, it was only by double manning the oars of the cutter that during an opportune lull I was able to establish a hauling line between the ship and the shore, and so communicate with him; when it appeared that, having one man disabled from exhaustion, he had decided to push on for the ship at all risk to obtain assistance. With the help of the fresh men forming the cutter's crew, Captain Markham and myself had the satisfaction of seeing the sledge party all on board before midnight, and the frozen man's life saved; but the sledge crew, who had so gallantly faced the storm, were all much exhausted, and in fact did not recover themselves for several days.

Water channel to westward.

Unable to connect the screw.

On the morning of the 15th the wind lulled considerably, and the remainder of Commander Markham's party, under the command of Lieutenant Parr, returned, having passed anything but a pleasant time in their tents during the gale. On ascending our look-out hill I observed that the ice to the westward between the land and the channel in the pack had drifted to seaward, leaving a clear road by which we could advance to a place of shelter. Making a signal to the ship, steam was immediately got ready and the rudder shipped, but on lowering the screw we found it impossible to enter the shaft. Whilst raising it again to clear away the ice, a very thick snow storm came on with a blinding mist, which hiding everything from view effectually prevented our moving. Before midnight the storm was blowing as furiously as ever.

Closed in by the ice for the winter.

On the morning of the 16th, the gale still keeping the main pack clear of the shore the weather cleared again, and another attempt was made to ship the screw, but without success, on account of the accumulated ice. While endeavouring to clear it the wind gradually shifted round to the N.W., and we had the mortification of seeing the pack rapidly nearing the land. By 2 P.M. it had reached the shore ice, and effectually closed us in for the winter. It never left the shore to the north-westward of our position afterwards, although a large space of clear water remained to the eastward between us and Robeson Channel, so long as the wind lasted from the eastward.

Could not have obtained shelter further west.

I may here add that on examining the coast line afterwards, both during the autumn and the following spring, I am firmly persuaded that our forced detention during the late gale was most providential. There was no bay on the coast open enough to receive the ship, and the ice at the entrance of each was far too thick for us to cut or force our way through before the main pack had closed in.

Floe-berg Beach the best protected position on the coast.

Off the open coast where we were forced to pass our winter, the heavy nature of the ice constituted our safety; grounding in twelve fathoms, it was impossible that it could hurt the ship. At first I was rather anxious lest any lighter ice might be forced in, and that then the ship might be driven by it on shore, but as time advanced and nothing but ice of the same thick character made its appearance, I became more reconciled to our position. It ultimately proved to be the best sheltered position on the coast from which a ready means of retreat was likely to be offered. In all other parts, the beach, either by being too steep, allowed the heavy ice to force its way close up on to the shore, or where shallower, left a sufficiently large space of water in which smaller and more dangerous ice-blocks were able to drift about before they grounded in about the same depth of water as that in which the ship floated.

During the following week preparations were made for the autumn sledging, each man being fully employed fitting his travelling clothing and preparing the equipment of the sledges.

See page 81.

Autumn travellers start.

See page 68.

As soon as the shore ice was sufficiently strong, Commander A. H. Markham, with Lieutenants A. A. C. Parr and W. H. May under his orders, started on the 25th September with three sledges to establish a depôt of provisions as far in advance to the north-westward as possible. Lieutenant P. Aldrich left four days previously with

two lightly equipped dog sledges to pioneer the road round Cape Joseph Henry for the larger party. He returned on board on the 5th October, after an absence of thirteen days, having been accompanied by Adam Ayles, A.B.; on the 27th September from the summit of a mountain 2,000 feet high, situated in Latitude 82° 48′ north, somewhat further north than the most northern Latitude attained by our gallant predecessor Sir Edward Parry in his celebrated boat journey towards the North Pole, he discovered land extending to the north-westward for a distance of sixty miles to Latitude 83° 7′, with lofty mountains in the interior to the southward. No land was sighted to the northward.

Lt. Aldrich attains the highest Latitude. Adam Ayles, A.B.

On the 14th October, two days after the sun had left us for its long winter's absence, Commander Markham's party returned after a journey of nineteen days, having, with very severe labour, succeeded in placing a depôt of provisions in Latitude 82° 44′ north, and of tracing the coast line nearly two miles further north, thus reaching the exact Latitude attained by Sir Edward Parry.

Return of the travellers.

Being anxious to inform Captain Stephenson of our position, and the good prospects before his travelling parties in the following spring in exploring the north-west coast of Greenland, I dispatched Lieutenant Rawson to again attempt to open communication between the two vessels, although I had grave doubts of his succeeding. He was absent from the 2nd to the 12th of October, returning unsuccessful on the latter day, having found his road again stoped by unsafe ice within a distance of nine miles of the ship. The broken masses of pressed up ice resting against the cliffs, in many places more than thirty feet high, and the accumulated deep snow drifts in the valleys caused very laborious and slow travelling.

Unable to communicate with "Discovery"

See page 89.

During these autumn sledging journeys, with the temperature ranging between 15 degrees above and 22 degrees below zero, the heavy labour, hardships, and discomforts inseparable from arctic travelling, caused by the wet soft snow, weak ice and water spaces which obliged the sledges to be dragged over the hills, combined with constant strong winds and misty weather, were if anything, much greater than those usually experienced. Out of the northern party of twenty-one men and three officers, no less than seven men and one officer returned to the ship badly frost-bitten, three of these so severely as to render amputation necessary, the patients being confined to their beds for the greater part of the winter.

Severe nature of autumn sledging.

The sledges with their cargoes on four occasions broke through the ice, and individual men frequently; but these, becoming wet through, were made to change their clothing, and so escaped any bad consequences. The frost-bites are to be attributed entirely to the wet sludgy state of some of the ice that had to be crossed. It so happened that heavy snow fell on twelve consecutive days, forming a layer of lightly compressed snow at least two feet thick, which in the snow drifts collected into ridges more than double that depth. The thin ice, not being sufficiently strong to support this additional weight, became borne down and allowed the water to ooze through, this being protected from the cold temperature of the air by its blanket-like covering, remained unfrozen, although the temperature was upwards of forty degrees below the freezing point; consequently whenever the travellers, inexperienced as they were at the time, were forced to drag their sledges over a road of this nature, their feet became wet and afterwards frost-bitten a considerable time before they discovered it (when the tent was pitched in the evening), by which time the mischief had attained such an advanced stage as to defy all restoration of the circulation. The tent equipment became so saturated with frozen moisture that on arrival on board it weighed more than double what it did when dry before starting; and so anxious were all to escape another sleepless night in the stiffly frozen blanket bags, that on the last day a forced march was made by the northern party through the heavy snow to the ship, in which the powers of endurance of all engaged were tried to the utmost.

All the travellers returned in wonderful spirits and full of pluck. Nothing could exceed the determined perseverance with which each obstacle to the advance of the party was overcome, or the cheerfulness with which each made light of the numerous unavoidable hardships they had undergone.

The sledges proved to be too rigid, the uprights breaking necessitated frequent stoppages for repairs; but by taking out the metal pins connecting them to the upper bearers, and depending entirely upon the hide lashings, they afterwards stood the unusually heavy work admirably.

Sledges.

On no one day while the northern party were travelling this season could they have obtained snow of sufficient consistency to enable them to build snow houses for shelter by night. Lieutenant Rawson, finding harder snow in the southern ravines, was able to construct a snow house on one occassion.

Inability to build snow houses.

The advantageous results of the autumn travelling, in addition to the advance of

Results of autumn travelling.

provisions for future use, were, first, a considerable gain in experience in arctic sledging, and secondly, by our greater good fortune in finding continuous land over or near which to travel, we succeeded in wresting from Sir Edward Parry and his companions their gallantly achieved distinction of having advanced the British Flag to the highest northern Latitude. I have grouped the names of himself and his followers together on the chart in the Latitude to which they attained in 1827.

Preparations for the winter.

On the return of the travelling parties, the sun having bidden us farewell, preparations were made for the winter; the ship was housed over, all the provisions and stores which could withstand the weather, and for which room could not be found below hatches, were deposited on shore, and the habitable deck cleared as much as possible.

By carefully covering over the engine-room hatches with a thick layer of snow, the cold, throughout the winter, was kept from penetrating downwards into the lower part of the ship. The temperature of the holds and engine-room, without the use of fires, always remaining above + 28°·5, the temperature of the surrounding water, and the fire-pumps which had their suction pipes more than six feet below the water-line, remained serviceable to the last.

Arctic winter.

The long arctic winter, with its unparalleled intensity and duration of darkness produced by an absence of sunlight for 142 days, was passed by each individual on board with much cheerfulness and contentment. Owing to the sameness in the daily routine, which, when looking into futurity, is thought to entail a long duration of dreary monotony, the time, in reality, passed with great rapidity, and in January, when the first glimmering increase in the mid-day twilight began to lengthen sensibly day by day, the want of light was scarcely noticed by any one; and not until the sun actually returned on the 1st March did we in any way realize the intense darkness we must have experienced for so long a period.

Exercise.

The manifold ordinary duties of the ship—to which were added the constant repair of the snow embankment, which, in consequence of our being frozen in close to a stranded piece of ice, was thrown down every spring tide—kept the ship's company fully employed, and gave them plenty of exercise during the day.

On five evenings in the week, a school, formed on the lower deck under Commander Markham and several of the officers, was well attended; each Thursday being devoted to lectures, songs in character, and readings, with occasional theatrical representations; the whole so admirably arranged and conducted by Commander Markham as to keep up the pleased interest of all for the whole period.

Ventilation.

The ventilation of the ship received the unceasing attention of Dr. Thomas Colan and myself, and owing to the large extra space amidships, left little or nothing to be desired in that respect.

Health.

The health of the officers and crew, with only one exception, was most excellent, and the habitable deck as dry as is possible in these regions, in a ship without an extraordinary expenditure of coal.

Preparations for spring travelling.

With the arrival of the new year preparations for the spring travelling campaign commenced, the dogs being exercised daily under the superintendence of Mr. George Le Clerc Egerton, Sub-Lieutenant, as soon as there was sufficient light.

Movement of the ice.

The pack in the offing remained in motion until the first week in November, when it gradually settled itself into position for the winter, the last pool of water being seen on the 16th of the month off Cape Rawson at the entrance to Robeson Channel.

No movement whatever occurred in the ice during the winter, except the formation of a tidal crack outside the grounded ice, which opened two or three feet during the spring tides.

Winds and weather.

Although we had frequent evidence of strong winds prevailing in Robeson Channel, the weather at our winter quarters was remarkably calm; indeed we may be said to have wintered on the border of a Pacific Sea. The prevailing wind was from the westward; we never experienced any easterly winds; it always blew off the land. Had it not been for the intervening calms, the persistent westerly winds might have been well called a trade wind. On only two days were we prevented by the wind and accompanying snowdrift from taking exercise outside the ship. This quiet state of the atmosphere was productive of the severest cold ever experienced in the arctic regions.

Temperature.

Early in March during a long continuance of cold weather, the "Alert" registered a minimum of 73°·7 below zero, the "Discovery" at the same time 70°·5 below zero.

In 1850 the "North Star," at Wolstenholme Sound, in latitude 76° 30′ N., recorded 69°·5 below zero.

The "Alert's" minimum temperature for twenty-four hours was 70°·31 below zero.
The "Discovery's" „ „ „ „ 67°·0 „

Dr. Kane's at Rensselaer Harbour, in Latitude 78° 37′ N. in 1854, 58°·01 below zero.

Previously the longest continuance of cold weather recorded, that by Sir Edward Belcher at Northumberland Sound, in Latitude 76° 52′ N., in 1853, was a mean temperature for ten consecutive days of 48°·9 below zero.

The "Discovery" experienced a mean temperature for seven consecutive days of 58°·17 ditto.

The "Alert" experienced a mean temperature for thirteen days of 58°·9 ditto; and for five days and nine hours of 66°29.

During February mercury remained frozen for fifteen consecutive days, a south-westerly gale, lasting four days, then brought warmer weather; immediately the wind fell the cold weather returned and the mercury remained frozen for a further period of fifteen days.

Snow fall.

After the heavy snow fall in the autumn previously alluded to, very little fell; and much trouble was experienced in obtaining sufficient for embanking the ship; it being necessary to drag some from the shore for that purpose. Owing to the small quantity which fell during the winter, estimated at from six to eight inches, the summits of the coast hills were uncovered by the wind and remained so until May and the early part of June, when we again experienced a heavy snow fall, estimated at a mean thickness of one foot.

In the valleys and on the shores having an eastern aspect, the snow which fell remained light, and, unless snow shoes were used, caused very heavy travelling. In the unprotected valleys and on the weather coasts the snow was sufficiently compact to afford fair travelling, much the same as that experienced in southern Latitudes, where the more variable winds harden the snow everywhere.

Aurora.

Light flashes of aurora were occasionally seen on various bearings, but most commonly passing through the zenith. None were of sufficient brilliancy to call for notice. The phenomena may be said to have been insignificant in the extreme, and, as far as we could discover, were totally unconnected with any magnetic or electric disturbance.

Magnetic observations.

During the winter Commander Albert H. Markham and Lieutenant George A. Giffard employed themselves with much diligence and perseverance at the magnetic observatory, situated on shore, in a series of large and lofty snow houses which were connected together with a covered snow gallery.

Weekly observations were made with Barrows' dip circle for determining the inclination; and by means of Lloyd's needles for the total (relative) force. Occasionally these observations were repeated on the same day.

The absolute horizontal intensity was obtained once every three weeks, and a series of hourly differential observations were obtained with the portable declination magnetometer on several consecutive days in the months of December, January, and February.

At various places between Disco and the "Alert's" winter quarters, whenever opportunities offered, observations for inclination and total force were taken with Mr. Fox's instrument, observations for determining the absolute declination were also taken when opportunities occurred.

Scientific observations.

Lieutenant Pelham Aldrich superintended the meteorological observations, also observations with Sir C. Wheatstone's polariscope, and Lieutenant Alfred A. C. Parr, notwithstanding the severe season, obtained a good series of astronomical observations, also observations with the spectroscope and Sir William Thomson's portable electrometer.

Captain Feilden, R.A., Naturalist.

I have not hitherto alluded to the services of Captain Feilden, Paymaster, R.A., Naturalist to the Expedition, preferring that the report on the numerous scientific subjects to which he has directed his attention should emanate from himself, I will merely state here that no one moment has been lost by this indefatigable collector and observer. He has, moreover, by his genial disposition and ready help on all occasions, won the friendship of all, and I feel confident that their Lordships will highly appreciate his valuable services. I am only doing him justice when I state that he has been to this Expedition, what Sabine was to that under the command of Sir Edward Parry.

Dr. E. Moss, scientific observations.

Dr. Edward Moss, a highly skilled and talented observer, in addition to his medical duties, kept himself fully employed in many branches of natural science; his investigations embraced studies of the floe-bergs and floes, principally chlorine estimations, specific gravity estimations by Buchanan's method, and microscopy of dust strata, of winter sea water, examination of air precipitates, estimation of carbonic acid and watery vapour in air, and some experiments on the brittleness of iron at low temperatures.

Game procured.

The vicinity of our winter quarters proved to be unfavoured by game. On our first arrival, a few ducks were seen and five shot, and during the winter and spring three

hares were shot in the neighbourhood of the ship. This completes our list up to the end of May.

In March, a wolf suddenly made his appearance, and the same day the track of three musk-oxen or reindeer were seen within two miles of the ship, but they had evidently only paid us a flying visit.

In July, six musk-oxen were shot, the only ones seen in our neighbourhood.

The travelling parties were only slightly more fortunate in obtaining game. In June a few ptarmigan, ducks and geese were shot and used by the sick. In July and August they obtained a ration of fresh meat daily.

In March and the beginning of April about two dozen ptarmigan passed the ship, flying towards the N.W. in pairs: finding no vegetation uncovered by snow in our neighbourhood, they flew on seeking better feeding grounds; they were nearly all shot subsequently by the outlying parties near Cape Joseph Henry. In the middle of May snow-buntings and knots arrived. A number of the young of the latter were killed in July, but no nests or eggs were found. Early in June ducks and geese passed in small flocks of about a dozen, flying towards the N.W., but owing to a heavy fall of snow, lasting three days, which covered the land more completely than at any other time during our stay, at least half the number returned to the southward, not pleased with their prospects so far north.

Two dozen small trout were caught during the autumn and summer in lakes from which they could not possibly escape to the sea.

The total game list for the neighbourhood of the "Alert's" winter quarters, is as follow:—

	Musk-oxen.	Hares.	Geese.	King Ducks.	Eider Ducks.	Long-tailed Ducks.	Ptarmigan.	Walrus.	Seals.	Foxes.
In Winter Quarters ..	6	7	67	12	..	9	..	..	1	3
By Short Service Sledging Parties	..	13	3	5	..	..	10	..	..	..
TOTAL	6	20	70	17	..	9	10	..	1	3

On the 1st March the sun returned after its long absence.

See page 42.

The sledging season being now near at hand, I prepared orders for Captain Stephenson to employ the whole force at his disposal in exploration of the neighbouring shore and the north coast of Greenland, instead of sending a party to communicate with Smith Sound, as I considered that a sledge-party employed on that duty this season would be performing unnecessary work, and that in the event of their Lordships communicating with Littleton Island, and finding that I had not visited it, they would understand that the Expedition was well placed for exploration far north, and that all was going on satisfactorily.

Dog-sledge starts to communicate with H.M.S. "Discovery."

See page 104.

The 4th of March was the day fixed for the dog-sledge to start to open communication with the "Discovery," should the weather be favourable, but the severe cold which we then experienced prevented their starting. The temperature remained unusually low until the 12th, when it rose to minus 35°, and the weather being fine and settled Mr. George Le Clerc Egerton, Sub-Lieutenant, started in charge of the dog-sledge, accompanied by Lieutenant Wyatt Rawson, belonging to the "Discovery," whom I wished to consult with Captain Stephenson concerning the exploration of the Greenland coast, and Christian Petersen, Interpreter. As I knew that this journey was sure to entail very severe labour, Frederick, the Esquimaux dog-driver, not being a strong man, was left on board. Four days afterwards, the temperature having risen considerably in the interval, with a strong wind from the southward, the party returned in consequence of the severe illness of Petersen. He was taken ill on the second march with cramp in the stomach; and afterwards nothing could keep him warm. The tent being very cold, the

Illness of Neil Christian Petersen.

two officers burrowed out a snow hut, and succeeded in raising the temperature inside to plus 7°, but the patient still remained in an unsatisfactory condition, and it was only by depriving themselves of all their own warm clothing, and at the expense of the heat of their own bodies, that they succeeded, after great persistence, in restoring the circulation in his extremities to some extent. The following day, Petersen being no better, they wisely determined to return with him immediately to the ship. During this journey of sixteen miles both Mr. Egerton and Lieutenant Rawson behaved most heroically, and, although frequently very seriously frost-bitten themselves, succeeded in keeping life in the invalid until they arrived on board. He was badly frost-bitten in the feet, both of which had subsequently to be amputated. Notwithstanding the professional ability and incessant watchful care of Dr. Thomas Colan, he never recovered from the severe shock his system had received on this occasion, and eventually expired from exhaustion three months afterwards. He leaves a wife and family, living in Copenhagen, whom, I trust, will receive a pension.

Death of Petersen, leaving wife and family.

On the 20th March, with fine weather and a temperature of 30° below zero, Mr. Egerton and Lieutenant Rawson, having partially recovered from their most praiseworthy exertions when attending Petersen, again started for the "Discovery," accompanied by two seamen, where they succeeded in reaching on the sixth day, after a very hard scramble over the rough ice in Robeson Channel, and along the steep snow slopes formed at the foot of the precipitous coast cliffs. No water was met with beyond that formed in the tidal crack, close to the shore. The temperature throughout the journey ranged from minus 42° to minus 24°.

Second start of dog-sledge to communicate with "Discovery" *See page* 110.

During the latter part of March the sledge crews were fully employed preparing their provisions, and equipping the sledges for the spring journeys. Long walks were taken for exercise, and a depôt of provisions was placed a few miles to the southward for the use of the Greenland Division.

Preparations for spring sledging.

On the 3rd April the seven sledges and crews, numbering fifty-three officers and men, started on their journeys with as bright prospects before them as any former arctic travellers,—everyone in apparently the best possible health, and, while knowing the severe labour and hardships they would have to undergo, all cheerful, and determined to do their utmost. A finer body of picked men than the crews of the three extended sledge parties were never previously collected together.

Departure of spring travelling parties.

Commander Albert H. Markham, seconded by Lieutenant Alfred A. C. Parr, with two boats equipped for an absence of seventy days, was to force his way to the northward over the ice, starting off from the land near Cape Joseph Henry.

Northern Division. *See page* 118.

Three sledge crews, under the respective commands of Dr. Edward Moss, who in addition to his duties as Medical Officer to the division, volunteered to assume executive charge, and Mr. George White, Engineer, also a volunteer, accompanying them as far as their provisions would allow. Lieutenant Pelham Aldrich, assisted by a sledge crew under the command of Lieutenant George A. Giffard, was to explore the shores of Grant Land towards the north and west, along the coast line he had discovered in the previous autumn.

Northern division of sledges.

Western Division. *See page* 167.

In regard to the first of these two journeys, that undertaken over the ice towards the north, it is my duty to its Commander and his followers to state that, knowing the extremely rough road over which they would be obliged to travel, I had little hope that they would reach a high Latitude, for their daily progress with light or heavy sledges must necessarily be very slow. I thought it best, nevertheless, to make the experiment, to prove whether or not the Pole could be reached by a direct course over the ice without continuous land along which to travel. Having such willing and determined leaders as Commander Markham and Lieutenant Parr, and the pick of the ship's company, who themselves were all chosen men out of numbers at hand, I sent them forth with full confidence that whatever was possible they would perform.

Difficulties foreseen in the northern route.

In organizing this party, nothing was known of the movements of the Polar ice. I was even in doubt whether it was not always in motion in the offing, consequently I decided that boats must be carried of sufficient capacity for navigation, and not merely for ferrying purposes. This necessitated very heavy weights being dragged. It was also necessary that the party should carry a heavy load of provisions, for, owing to our clear weather and lofty look-out station, we had previously ascertained that no land existed within a distance of fifty miles of Cape Joseph Henry.

When a sledge party have to drag a boat even with only a few days' provisions and over a smooth floe, double trips are necessary over the same road daily, in the same manner as Sir Edward Parry was compelled to journey in 1827, consequently, the utmost limit that could be transported in this way with two trips on level ice was chosen, and this provided the party for an absence from the land for sixty-three days. The plan usually

resorted to of reducing the weights carried by the advance party by providing a chain of supporting sledges, is not applicable when each assisting sledge requires a boat capable of carrying its crew.

Return of dog-sledge from "Discovery"

On the day following the departure of our travelling parties, Mr. Egerton and Lieutenant Rawson returned from the "Discovery" after a rough journey, with a temperature ranging between 44° and 15° below zero, but all in good health and spirits, and, beyond sore noses and tips of fingers from frost-bites, were none the worse for their cold journey.

News from "Discovery."

The news from the "Discovery" was most cheering, with the exception that, although they had succeeded in obtaining upwards of thirty musk-oxen, one man was in the sick list with a bad attack of scurvy. With this exception the crew of the "Discovery" had passed a very comfortable winter. Plenty of cheerful work leading to and inducing constant employment of mind and body, coupled with a fair share of mirthful relaxation and a frequent meal of fresh meat. I refer you to Captain Stephenson's full report for a detail of his proceedings. His crew were preparing for the exploration of Lady Franklin Sound and the coast of Greenland.

See page 44.

Return of first auxiliary sledge.

The only case of frost-bite during spring travelling after April.

On the 8th April the first supporting sledge returned from Commander Markham's and Lieutenant Aldrich's parties. As usual on the first starting, several of the travellers were much distressed by the severe and unaccustomed work, and the cold weather preventing sleep at night, but were gradually improving. One man, who had been ailing slightly during the last month, was sent back, and one of the crew of the supporting sledge returned with a frost-bite, the only serious case during the season, although the travellers, on two days out of the six that this party were away, experienced a temperature of minus 46 degrees.

See page 274.

Dog-sledge to pioneer road across Robeson Channel.

On the 10th April, Lieutenant Wyatt Rawson and Sub-Lieutenant George Le Clerc Egerton, having somewhat recovered after their cold journey to the "Discovery," equipped with light sledges started to ascertain the nature of the ice in Robeson Channel, and to mark a convenient road across it for the heavier exploring sledges coming north from the "Discovery" under the command of Lieutenant Lewis A. Beaumont.

Return of auxiliary sledges from Northern Division.

On the 14th of April the second division of the supporting sledges returned, reporting the main parties to have settled steadily down to their work, and with the exception of one marine suffering from debility who was sent back, all were in good health and capital spirits. The temperature had fortunately risen to about minus 26 degrees. The very cold weather had tried the party much, and there had been numerous light cases of frost-bites, which but for the presence and care of Dr. Moss might have proved serious. The appearance of the ice within six miles of the land was anything but cheering to the northern party, but they looked forward with hope that the floes would get larger and less broken up as they advanced. Each sledge carried extra tea in lieu of the usual mid-day allowance of spirits. Both men and officers were unanimous in favour of the change, and willingly put up with the misery of standing still in the cold with cold feet during the long halt needed for the purpose of boiling the water, and all agreed that they worked better after the tea lunch, than during the forenoon.

Ration of tea preferred to rum.

Greenland division of sledges arrive from H.M.S. "Discovery."

Depôt of provisions at Polaris Bay.

On the 16th, Lieutenant Lewis A. Beaumont and Dr. Richard W. Coppinger arrived from the "Discovery," having been ten days performing a travelling distance of 76 miles with light sledges, so broken up and difficult was the nature of the ice in Robeson Channel. They brought news that the ice was continuous and afforded fair travelling across Hall's Basin, and that the depôt of provisions at Polaris Bay was in good condition and fit for use. These circumstances enabled me to arrange for Lieutenant Beaumont to proceed with lightly laden sledges along the Greenland coast to the eastward, and after completing his journey to fall back on the "Polaris" depôt before the 15th June, by which time two boats would be carried across the straits from the "Discovery," ready for his retreat should the ice have broken up.

Route across Robeson Channel practicable. Return of dog-sledge from Greenland.

On the 18th, Lieutenant Rawson and Mr. Egerton returned, having succeeded in crossing the channel without finding more than the usual difficulties amongst the heavy hummocks, which they had now become so accustomed to. They had landed on the Greenland coast, north of the position marked as Repulse Harbour, which proves to be only a slight indentation in the coast line, having a fresh water lake inshore of it, which from an inland view might readily be mistaken for a harbour.

Departure of Greenland Division of sledges.

See page 338.

On the 20th of April Lieutenant Beaumont, accompanied by Lieutenant Rawson and Dr. Coppinger, started for his Greenland exploration, the few days' rest having materially benefited his men, who may be said to have started from the "Discovery" inexperienced in arctic sledging, that ship having had no autumn travelling in consequence of the ice remaining in motion until a very late period of the season.

On the 23rd of April Captain Stephenson and Mr. Thomas Mitchell, Assistant Paymaster in charge, arrived from the "Discovery," and I had the advantage of consulting with the former unreservedly concerning the prospects of our numerous travellers then scattered over the neighbouring shores, the two ships remaining tenanted only by officers and a few invalids. Arrangements were made for the exploration of Petermann Fiord, and, should the season prove favourable, for the examination of the ice-cap south of Bessels Bay. On the 30th of April Captain Stephenson returned to the "Discovery."

Arrival of Captain Stephenson and Mr. Thomas Mitchell.

Until the latter end of May sledge parties were continually arriving or departing; carrying forward depôts of provisions for the use of the distant parties on their return. In carrying out these duties I was much indebted to Dr. Edward L. Moss, who again volunteered to command a sledge, and I the more readily availed myself of his services, knowing that it would afford him a wider field for continuing his scientific studies.

Establishment of depôts of provisions for the use of travelling parties.

Mr. James Wootton, Engineer, also assisted me materially as commander of a sledge party.

Mr. James Wootton, Engineer.

On the 3rd May Lieut. Giffard returned with news from Lieut. Pelham Aldrich up to the 25th April, his twenty-second day out from the ship. He reported that all his crew were well and cheerful, but that the soft snow was causing very heavy and slow travelling.

Return of Lt. Aldrich's auxiliary sledge.

Up to this time all had gone well with the Expedition. The two ships had advanced as far north as was possible; they were admirably placed for exploration and other purposes; and the sledge crews, formed of men in full health and strength, had obtained a fair start on their journeys under as favourable circumstances as possible. On the 3rd of May Dr. Thomas Colan reported that five men had scorbutic symptoms; however, as each case had some predisposing cause, I was not alarmed, until on the 8th the three Ice Quarter-masters and two Able Seamen returning from sledge service were attacked, and by the 8th June fourteen of the crew of the "Alert" and three men belonging to the "Discovery" who happened to be on board, forming the majority of the number of men then present, had been, or were, under the doctor's care for the same wasting disorder. Captain Stephenson also reported that four more of his crew had been attacked.

Good prospects of the Expedition.

Outbreak of scurvy.

Although many of the sledge crews formerly employed on Arctic research had been attacked by this disease, some had totally escaped; therefore, considering the ample equipment and carefully prepared provisions with which the "Alert" and "Discovery" were provided, its outbreak was most inexplicable and unlooked for. It was, however, most encouraging to learn from the report of former expeditions, how transient the attacks had usually proved, and how readily the patients recovered with rest, the advance of summer, and a change to a more generous diet.

On the 9th of May, by the return of Lieutenant May and Mr. Egerton from Greenland, whither they had carried supplies and succeeded in discovering a practicable overland route immediately east of Cape Brevoort fit for the use of the returning sledges should the ice break up, I received news of Lieutenant Beaumont's party up to the 4th May, when he was within two miles of Cape Stanton. From their place of crossing the Straits, they found that the coast line for nearly the entire distance to Cape Stanton, was formed either by precipitous cliffs or very steep snow slopes, the bases of which receive the direct and unchecked pressure of the northern pack as it drifts from the north-westward and strikes against that part of the coast nearly at right angles. The floe-bergs, at their maximum sizes, were pressed high up one over the other against the steep shore; the chaos outside was something indescribable, and the travelling the worst that can possibly be imagined, seven days being occupied in moving forward only 20 miles. Being quite uncertain when such a road might become impassable by the ice breaking up in May as it did in 1872, a depôt of provisions, sufficient for a return journey by land, was wisely left, but Lieutenant Beaumont's journey was thus shortened considerably.

News from Greenland Division.

Very heavy travelling on the Greenland coast.

As nearly every south-westerly wind we experienced at Floeberg Beach changed its direction to N.W. before it blew itself out, the coast of Greenland north of Cape Brevoort must necessarily be a very wild one as regards ice pressure, and a most uncertain coast for navigation. A vessel once caught in the pack ice off that shore, if not crushed at once, runs a great risk of being carried by it to the eastward round the northern coast, as pointed out by Admiral Sir George Back, Kt. F.R.S.

The Greenland shore much exposed to the ice pressure.

During the first week in May the temperature rising to zero enabled me to remove the snow from over the skylights and bull's-eyes, and let in light between decks: but owing to there being no skylight over the lower deck it still remained very dark.

Rise of temperature. Uncover skylights

I would here remark, how very important it is that Arctic ships should, if possible, be fitted with a large skylight above the ship's company's living deck.

Lieutenant Giffard's return.

On the 24th of May Lieutenant Giffard returned on board, after depositing Lieutenant Pelham Aldrich's last depôt of provisions, he and his crew having performed their important work well and expeditiously; but I am sorry to add that he brought Dr. Colan two more invalids. The attack occurring on his outward journey, as it was of vital importance that he pushed on, Lieutenant Giffard was necessarily obliged to leave them in a snow hut for five days, one man taking care of the other as best he could until the party returned. Lieutenant Giffard acted with great judgment, decision, and consideration on this occasion, and the two invalids recovered before the ship broke out of winter quarters.

Invalids left in a snow hut.

Closing of Lady Franklin Sound.

On the 1st of June Mr. Crawford Conybeare arrived with news from the "Discovery" up to the 22nd of May. Lieutenant Archer had completed his examination of the opening in the land west of Lady Franklin Sound, proving it to be a deep fiord terminating in mountainous land, with glacier-covered valleys in the interior.

Boats conveyed to Polaris Bay.

Lieutenant Reginald B. Fulford, with the men returned from Lieutenant Archer's party, then transported two boats across Hall's Basin to assist Lieutenant Beaumont in his return later in the season. Captain Stephenson, accompanied by Mr. Henry C. Hart, naturalist, overtook this party on the 12th at Polaris Bay. On the following day, the American flag being hoisted, a brass tablet prepared in England was erected at the foot of Captain Hall's grave with due solemnity. It bore the following inscription :—

Captain Stephenson erects a tablet at Captain Hall's grave.

"Sacred
to the Memory of
CAPTAIN C. F. HALL,
of the U.S. Ship 'Polaris,'
who sacrificed his Life
in the advancement of Science,
on the 8th November, 1871.
"This Tablet has been erected by the British Polar Expedition of 1875, who, following in his footsteps, have profited by his experience."

Polaris cairns and boat depôt at Newman Bay visited.

Dr. Coppinger, when returning from assisting Lieutenant Beaumont, had visited Captain Hall's Cairn at Cape Brevoort, and the boat depôt in Newman Bay, and conveyed the few articles of any value to the "Discovery." The boat itself, with the exception of one hole easily repairable, was in a serviceable condition.

Examination of Petermann Fiord.

Captain Stephenson returned to the "Discovery" on the 18th May, leaving Lieutenant Fulford and Dr. Coppinger on the Greenland shore to explore Petermann Fiord.

Robeson Channel impracticable for sledges.

Mr. Crawford Conybeare having reported that the travelling along shore in Robeson Channel was fast becoming impracticable in consequence of the ice being in motion near the shore, his party were kept on board the "Alert."

News from Northern Division.

On the evening of the 8th June Lieutenant A. A. C. Parr arrived on board, most unexpectedly, with the distressing intelligence that nearly the whole of the crew belonging to the northern division of sledges were attacked with scurvy, and in want of immediate assistance. Commander Markham, and the few men who were able to keep on their feet, had succeeded in conveying the invalids to the neighbourhood of Cape Joseph Henry, thirty miles distant from the ship, but each day was rapidly adding to the intensity of the disease, and, while lessening the powers of those still able to work, adding to the number of the sick, and consequently, alarmingly increasing the weight which had to be dragged on the sledges. Under these circumstances, Lieutenant Parr, with his usual brave determination, and knowing exactly his own powers, nobly volunteered to bring me the news, and so obtain relief for his companions. Starting with only an Alpine stock, and a small allowance of provisions, he completed his long solitary walk, over a very rough icy road deeply covered with newly fallen snow, within twenty-four hours.

Relief of Northern Division.

Arrangements were immediately made to proceed to Commander Markham's assistance; and with the help of the officers, who at once all volunteered to drag the sledges, I was able by midnight to proceed with two strong parties, Messrs. Egerton, Conybeare, Wootton and White, the officers who could be best spared from the ship, taking their

places at the drag ropes, Lieutenant W. H. May and Dr. E. Moss pushing on a-head with the dog-sledge laden with appropriate medical stores.

By making a forced march the two latter, with James Self, A.B., reached Commander Markham's camp within fifty hours of the departure of Lieutenant Parr, although they were, I deeply regret to state, unfortunately too late to save the life of George Porter, Gunner, R.M.A., who only a few hours previously had expired and had been buried in the floe. Their arrival had a most exhilarating effect on the stricken party who were gallantly continuing their journey as best they could. Early on the following day the relief party joined them, when the hope and trust which had never deserted these determined men were quickened to the utmost, even the invalids losing the depression of spirits always induced by the insidious disease that had attacked them; and which in their case was much intensified by the recent loss of their comrade. Early on the morning of the 14th, owing to the skill and incessant attention of Dr. E. Moss and the assistance of the dog sledge conducted by Lieutenant May and James Self, A.B., who with a most praiseworthy disregard of their own rest, were constantly on the move, Commander Markham and I had the satisfaction of reaching the ship without further loss of life; and, after a general expression of thanksgiving to God for his watchful care over the lives of the survivors, of placing them under the skilful charge of Dr. T. Colan, fleet-surgeon.

Of the original seventeen members composing the party, only five—the two officers and three of the men, John Radmore, Chief Carpenter's mate, Thomas Joliffe, first-class Petty Officer, and William Maskell, A.B.—were able to drag the sledges alongside. Three others, Edwin Lawrence, Captain Forecastle. George Winstone, A.B., and Daniel Harley, Captain Foretop, manfully kept on their feet to the last, submitting to extreme pain and fatigue rather than by riding on the sledge increase the weight their enfeebled companions had to drag; and were just able to walk on board the ship without assistance. The remaining eight, after a long struggle, had been forced to succumb to the disease, and were carried on the sledges. Out of the whole number, the two officers alone escaped the attack of scurvy. After a few days' rest and attention, John Radmore, Chief Carpenter's mate, returned to his duty, and three of the others were able to attend on their sick comrades; but Thomas Joliffe, who had most manfully resisted the disease while actively employed, when his legs became cramped from resting on his return on board, was one of the most lingering cases. These men gradually recovered, and were all out of the sick list before the ship was free of the ice during the passage home.

Nature of ice travelled over by Northern Division.

In journeying to the northward, the route, after leaving the coast, seldom lay over smooth ice; the somewhat level floes or fields, although standing at a mean height of 6 feet above the neighbouring ice, were small, usually less than a mile across. Their surfaces were thickly studded over with rounded blue-topped ice humps, of a mean height above the general level of from 10 to 20 feet, lying sometimes in ranges, but more frequently separated at a distance of from 100 to 200 yards apart, the depressions between being filled with snow deeply scored into ridges by the wind, the whole composition being well comparable to a suddenly frozen oceanic sea. Separating these floes, as it were by a broadened out-hedge, lay a vast collection of debris of the previous summers broken up pack ice, which had been re-frozen during the winter into one chaotic rugged mass of angular blocks of various heights up to 40 and 50 feet, and every possible shape leaving little, if any, choice of a road over, through, or round about them. Among these was a continuous series of steep-sided snow drifts sloping down from the highest altitude of the pressed up ice, until lost in the general level at a distance of about 100 yards, The prevailing wind during the previous winter having been from the westward, and the sledges' course being due north, these "sastrugi,"* instead of rendering the road smoother, as they frequently do in travelling along a coast line, when advantage can be taken of their long smooth tops, had to be encountered nearly at right angles. The whole formed the roughest line of way imaginable, without the slightest prospect of ever improving, The journey was consequently an incessant battle to overcome ever recurring obstacles, each hard-won success stimulating them for the next struggle. A passage way had always to be cut through the squeezed-up ice with pickaxes, an extra one being carried for the purpose, and an incline picked out of the perpendicular side of the high floes or roadway built up, before the sledges, generally one at a time, could be brought on, Instead of advancing with a steady walk, the usual means of progression, more than half of each day was expended by the whole party facing the sledge and pulling it forward a few feet at a time. Under these circumstances, the distance attained, short as it may be considered by some, was truly marvellous.

* Wave-like stripes of snow formed, either on the plains on land or on the level ice of the sea, by any wind of long continuance. *See* "Narrative of an Expedition to the Polar Sea, 1820–23," commanded by Lieutenant Von Wrangell, second edition, edited by Lieut.-Colonel Sabine, page 141.

The excellent conduct of the crews and the spirit displayed by them, combined with the work performed, indicated in a striking manner the sense of confidence in the leaders which they enjoyed, and points unmistakably to the watchful care taken of themselves and to the general good guidance of the party.

No two officers could have conducted this arduous journey with greater ability or courage than Commander Albert H. Markham and his very able second in command, Lieutenant A. A. Chase Parr, and I trust that their Lordships will notice their services by some mark of approval.

The services of Thomas Rawlings and Edward Lawrence, 1st class Petty Officers, filling the highly important positions of captains of the sledges, was beyond all praise. In addition to their general cheerfulness and good humour, to their care, and skill must be attributed the safe return of the sledges, on which the lives of the party depended, uninjured, and in as serviceable a state as when they left the ship, notwithstanding the heavy nature of the road, which on all former occasions not only repulsed the travellers altogether, but drove them back with broken-up equipment.

To such men as these, and the sledge crews generally, it is difficult to find any reward which can in the least compensate them for the manner in which they have manfully met the extreme privations and continuous labour necessarily undergone.

Result of attempt to journey north over the Polar ice.

During this memorable journey to penetrate towards the north over the heavy Polar oceanic ice, without the assistance of continuous land along which to travel, in which has been displayed in its highest state the pluck and courageous determination of the British seaman, to steadily persevere, day after day, against apparently insurmountable difficulties, their spirits rising as the oppositions increased, Commander Markham and Lieutenant Parr and their brave associates succeeded in advancing the National Flag to Latitude 83° 20′ 26″ N., leaving a distance of 400 miles still to be travelled over before the North Pole is reached.

In order to attain this position, although a direct distance of only 73 miles from the ship was accomplished, the total distance travelled was 276 miles on the outward, and 245 miles on the homeward journey.

Their severe labour and exertions which certainly can never be surpassed, coupled with the experience gained by Sir Edward Parry in the summer of 1827, proves that a lengthened journey over the Polar pack ice with a sledge party provided with a navigable boat is, in consequence of the rough nature of the road over which the party has to travel, impracticable at any season of the year; and further, as the sledges were necessarily advanced each stage singly, we are enabled to estimate the exact rate of progression which may be expected should any one consider it desirable to push forward with light sledges without any additional means of returning later in the season in the event of the ice breaking up in his rear. The maximum rate of advance in this way was at the rate of $2\frac{3}{4}$ miles a day, the mean being at the rate of $1\frac{1}{4}$ miles a day.

It may be necessary here to state that the much to be deplored outbreak of scurvy, which certainly shortened the journey to the extent of some 10 or 20 miles, in no way affects the conclusions to be derived from it. When the first two men who were attacked complained of sore legs, the disorder so commonly experienced by travellers in all countries, and particularly those employed to drag arctic sledges, the loss of their services at the drag ropes was fully balanced by one of the two boats being left behind, thus, the daily distance accomplished during the first 25 days of the outward journey was not materially altered, and it was only during the latter 14 days, that owing to the gradual break-down of three more of the crew, the rate of advance was necessarily much retarded. The previous rate however had been so slow that the party gallantly continued their advance to the utmost limit of their provisions, confident that with the help of the manual labour of the officers, they could readily return to the land along the road on which they had expended so much labour in somewhat levelling during their outward journey.

Anxiety about Western Division

The scurvy by this time having, with very few exceptions, attacked the whole ship's company, I was somewhat anxious concerning the health of Lieutenant Aldrich's men returning from their western journey; particularly when I observed that the cairn erected over his depôt of provisions, 30 miles to the N.W., remained untouched on the day appointed for his arrival there; accordingly I sent Lieutenant May with the dog sledge, and three strong men to meet him. On the 20th June the two parties joined company at the depôt and signalled their arrival to the ship. Lieutenant Aldrich had crossed the land only just in time, for on the following day a gale of wind from the southward commenced bringing warmer weather, and the thaw set in with such rapidity that the snow valleys on the land were rendered impassable for sledges for the remainder of

See page 316.
Relief party Western Division sighted.

the season. Lieutenant May met the party on the very last day, when most of them were able to travel, having succeeded in reaching, after a very severe journey most courageously borne, the same position to which Commander Markham's party had returned without assistance; but there the same blight that attacked the northern party, and against which the western division had long been struggling, gained on them so quickly that, with the exception of Lieutenant Aldrich and Adam Ayles (P. O., 2nd cl.), the whole crew were placed *hors de combat*, James Doidge (1st cl. P.O.) and David Mitchell (A.B.) still gallantly struggling along by the side of the sledge, the other four invalids, having held out until the last moment, were obliged to be carried. Under these circumstances the arrival of Lieut. May with relief was most providential. Condition of Western Division.

With their assistance Lieutenant Aldrich succeeded in reaching the "Alert" on the morning of the 26th, when, after again publicly returning thanks to Almighty God for his watchful care over the lives of the party, they were placed under Dr. Colan's charge, the Officer being the only one not attacked by scurvy.

Notwithstanding a bad start, owing to the necessity of crossing the land with heavily laden sledges, Lieutenant Aldrich with great energy, succeeded in exploring the coast line to the westward for a distance of 220 miles from the position of the "Alert." Trending first to the North Westward for 90 miles to Cape Columbia, the extreme northern cape in Lat. 83° 7′ N. and Long. 70° 30′ W., the coast extends to the West for 60 miles to Long. 79° 0′ W. and then gradually trends round to the southward, to Lat. 82° 16′ N. and Long. 85° 33′ W. the extreme position attained. No land or appearance of land was seen at any time to the northward or westward, and owing to the continued heavy nature of the ice, I conclude that no land can possibly exist within an attainable distance from this coast. Work performed by Western Division.

Although most of the party suffered more or less during the outward journey, the attack was supposed to be merely transient, and it was not until they were returning home when the scorbutic symptoms of sore gums first made their appearance, that the real nature of the disease was in the least suspected. Western Division attacked by scurvy.

To these men equal praise is due as to their comrades employed in the northern division for the endurance and intrepidity with which each individual performed his respective duty. Crippled nearly as badly, they if possible suffered more severely; for being so distant from relief none could be carried without imperilling all, and each was obliged to remain toiling at the drag ropes making forced marches.

It is to Lieutenant Aldrich's judicious care and energy during the long and anxious homeward march, seconded by the spirited example of Joseph Good, acting Chief Boatswain's mate, captain of the sledge, himself one of the most enfeebled of the party, that they owe their lives. Services of Lieutenant Aldrich.

Lieutenant Aldrich's services on this, as on all other occasions during the three years he has been under my command, calls for my unqualified admiration; he is a talented and zealous officer, and in every way deserving of their Lordships' consideration.

Again I have to bring to your notice the valuable services of Lieutenant May and James Self, A.B.; the thaw having set in, it was principally due to their incessant labour that the party arrived on board before the rapidly advancing disease had further developed itself. Services of Lieutenant May and James Self.

With regard to the outbreak of scurvy, which attacked the crew of the "Discovery" as well as ourselves, when the sledge crews started early in April, a finer body of men in apparently perfect health it would have been difficult to pick anywhere, and I trusted that, owing to the excellent condition of our provisions, we were secure from any attack, but I must now conclude that disease was even then lurking among us, and that the heavy labour of sledge travelling intensified and brought it out, as has been the case in nearly all former journeys when the travellers have been unable to procure large supplies of game, and were unprovided with lime juice. It attacked first the weakly men, afterwards the strong men who were predisposed for it, and most severely of all those who were employed on the longest and most trying journeys. Attack of scurvy.

Had there been no sledging work I believe that the disease would not have betrayed its presence amongst us, and had the officers been called upon *from the first* to perform as severe daily labour as their men I think that they would have been equally attacked.

On the 9th July, fifteen days after the return of the last sledge party, 36 of the crew of this ship had been, and 24 were, under treatment for scurvy.

This large number of patients, most of them requiring constant and special attention, necessarily taxed to the utmost the services of Dr. Thomas Colan, Fleet Surgeon, and his able second, Dr. Ed. Moss, Surgeon. Nothing could exceed their indefatigable Services of Fleet-Surgeon Dr. Thomas Colan.

patience and care. The deprivation of necessary rest and exercise cheerfully submitted to by Dr. Colan, upon whom the chief responsibility fell, considerably impaired his own health, following as it did so closely on his long anxious watch by the bedside of Neil Petersen.

Proceedings of Greenland Division.

In order to preserve the continuity of the narrative, I will here report the result of Lieutenant Beaumont's exploration on the Greenland coast, but which I only learnt some time afterwards.

Outbreak of scurvy.

On the 6th of August, while the "Alert" was imprisoned by the ice twenty miles north of Discovery Harbour, during her passage down Robeson Channel, Lieutenant Rawson and two men arrived with letters from Captain Stephenson containing the distressing intelligence that scurvy had attacked the Greenland Division of sledges with as much severity as it had visited the travellers from the "Alert," and that Lieutenant Beaumont was then at Polaris Bay recruiting his men.

See page 340.

I must refer you to Captain Stephenson's letter and to Lieutenant Lewis A. Beaumont's report for a full detail of the proceedings of this party, but I may here mention the chief points.

I have already reported their movements up to the 5th May, when Dr. Coppinger left them; Lieutenant Beaumont with two sledge crews journeying to the north-eastward along the north coast of Greenland, all apparently in good health. A very few days after, James Hand, A.B., who had passed the winter on board of the "Alert," showed symptoms of scurvy. As soon as the nature of the disease was decided, Lieutenant Beaumont determined to send Lieutenant Rawson with three men and the invalid back to Polaris Bay, and to continue the exploration with reduced numbers.

Lieutenant Rawson returns to Polaris Bay.

Death of James Hand, A.B.

Geo. Bryant, P.O. 1st Cl.

Lieutenant Wyatt Rawson parted company on his return on the 11th of May; but owing to two more of his crew breaking down, leaving only himself and one man strong enough to drag the sledge on which lay the principal sufferer, and to look after the other two, he only succeeded in reaching the depôt on the 3rd of June; James Hand, unhappily dying from the extreme fatigue a few hours after the arrival of the party at Polaris Bay. Out of the other men forming the sledge crew, who had all passed the winter on board the "Alert," only one of them—Elijah Rayner, Gunner, R.M.A.—escaped the insidious disease; George Bryant, 1st Class Petty Officer and Captain of the sledge, and Michael Regan, A.B., were both attacked, the former, although in a very bad state, manfully refused to the last to be carried on the sledge, knowing that his extra weight would endanger the lives of all.

Lieutenant Rawson's services.

I cannot praise Lieut. Rawson's conduct on this occasion too highly: it is entirely due to his genial but firm command of his party, inspiriting as he did his crippled band, who relied with the utmost confidence on him, that they succeeded in reaching the depôt.

His return being totally unexpected, no relief was thought of, nor, indeed, were there any men to send.

Lieutenant Fulford and Dr. Coppinger arrive at Polaris Bay from Petermann Fiord.

On the 7th of June Lieutenant Fulford and Dr. Coppinger, with Hans and the dog-sledge, returned to Polaris Bay depôt from the exploration of Petermann Fiord; and, with the help of some fresh seal meat and the professional skill and care of Dr. Coppinger, the malady was checked and the sick men gradually regained strength.

Lieutenant Beaumont's farthest.

Lieutenant Beaumont, continuing his journey on the 21st May, succeeded in reaching Lat. 82° 18′ N., Long. 50° 40′ W., discovered land, apparently an island, but, owing to the nature of the ice, probably a continuation of the Greenland coast, extending to Lat. 82° 54′ N., Long. 48° 33′ W.

Return of Greenland Division.

By this time two more of the crew showed symptoms of scurvy, and soon after the return journey was commenced the whole party were attacked, until at last Lieutenant Beaumont, Alexander Gray, Ice-Quartermaster captain of the sledge, and Frank Jones, Stoker, were alone able to drag, the other four men having to be carried forward on the sledge in detachments, which necessitated always double and most frequently treble journeys over the rough and disheartening icy road; nevertheless, the gallant band struggled manfully onwards, thankful if they made one mile a day, but never losing heart; but Lieutenant Beaumont's anxiety being intense lest relief should arrive too late to save the lives of the worst cases.

Relief of the party.

Not arriving at Polaris Bay on the day expected, Lieutenant Wyatt Rawson and Dr. Richard W. Coppinger, with Hans and the dog-sledge, started on the 22nd June to look for them, the two parties providentially meeting in Newman's Bay, 20 miles from the depôt. The following day Frank Jones being unable to drag any longer, walked; leaving the three officers and Alexander Gray to drag the four invalids, the dogs carrying

on the provisions and equipage. On the 27th Alexander Gray was obliged to give in, and the officers had to drag the sledge by themselves, Gray and Jones hobbling along as best they could. On the 28th, being within a day's march of the depôt with the dogs, the two worst cases were sent on in charge of Dr. Coppinger, and arrived at the end of the march, but I regret to state that Charles W. Paul, A.B., who joined the expedition from the "Valorous" at Disco, at the last moment, died shortly after their arrival.

Death of Charles W. Paul, A.B.

The remainder of the party, helped by Hans and the dogs, arrived at the depôt on the 1st of July, and it being impossible to cross the strait and return to the "Discovery" before the invalids were recruited, at once settled themselves down for a month's stay, those able to get about, shooting game for the sufferers with such success that they obtained a daily ration of fresh meat.

Arrival of the Greenland Division at Polaris Bay.

It was entirely due, under Providence, to the timely assistance dispatched by Lieutenant Rawson, who, as senior officer at Polaris Bay, when there was not time to cross Hall's Basin and inform Captain Stephenson of his apprehensions, acted promptly on his own authority and went to the relief of Lieutenant Beaumont's party, that more casualties did not occur.

After such details it is scarcely necessary for me to allude to the services of Lieutenant Beaumont. The command of the Greenland sledges, entailing as it did the crossing and recrossing of Robeson Channel—which in 1872 remained in motion all the season—required even greater care and judgment than is always necessary in the leader of an Arctic sledge party. My confidence in Lieutenant Beaumont, as expressed in my original orders to him, was fully borne out by his careful conduct of the party throughout this trying and most harassing march. He is a most judicious, determined, and intelligent leader, and as such I bring his services to the notice of their Lordships.

Services of Lieut. Beaumont.

Captain Stephenson by personal inspection having satisfied himself that the resources of the Polaris Depôt were sufficient and appropriate for the subsistence of the men detached to the Greenland shore, although naturally anxious at their non-arrival on board the "Discovery," was not alarmed for their safety.

Captain Stephenson's apprehensions.

On the 12th of July Lieut. Fulford, with two men and the dog-sledge, were dispatched across Hall's Basin to Discovery Harbour, and arrived there on the third day, having found the ice in motion on the west side of the channel, and experiencing much difficulty in effecting a landing.

Arrival of Lt. Fulford on board the "Discovery."

On the receipt of the news Captain Stephenson instantly started with a relief party, carrying medical comforts, and arrived at Polaris Bay on the 19th. On the following day the ice was in motion on both sides of the channel.

Captain Stephenson starts with relief.

On the 29th Captain Stephenson, with Lieut. Rawson, Hans, and four able men, with two invalids who could walk, started with the dingy for Discovery Harbour, and after a very wet journey they landed on the west shore on the 2nd August, Lieut. Beaumont and Dr. Coppinger, with five strong men, being left for a few days longer in order to give the other two invalids further time to recruit.

Half the Greenland Division return to the "Discovery."

The whole party ultimately re-crossed the Strait, and arrived at Discovery Harbour on the 14th August, having been absent from their ship 132 days, several of the party who had wintered on board of the "Alert" having been absent since the 26th of August the previous year.

The remainder of Greenland Division re-cross Hall's Basin.

Great praise is due to Dr. Richard W. Coppinger for his skilful treatment of the disease; living as he and the party did for from six to eight weeks in tents on an Arctic shore without extra resources or medicines, except at the last: it is much to his credit that on their arrival on board the "Discovery" all the patients were able to perform their ship duties.

Services of Surgeon Dr. Coppinger.

All speak in the highest terms of Hans, the Esquimaux, who was untiring in his exertions with the dog-sledge, and in procuring game—it was owing to his patient skill in shooting seal that Dr. Coppinger was able to regulate the diet somewhat to his satisfaction.

Hans, Esquimaux.

Lieutenant Reginald B. Fulford and Dr. Richard W. Coppinger cleared up all doubt about the nature of Petermann Fiord, having reached at a distance of nineteen miles from the entrance, the precipitous cliff of a glacier which stretched across the Fiord.

Petermann Fiord.

On considering the result of the spring sledging operations, I concluded that, owing to the absence of land trending to the northward and the Polar pack not being navigable, no ship could be carried north on either side of Smith Sound beyond the position we had already attained; and also that from any maintainable position in Smith's Sound it was impossible to advance nearer the pole by sledges.

Result of spring sledging operations.

Decided to return to England.

The only object, therefore, to be gained by the expedition remaining in the vicinity for another season would be to extend the exploration of the shores of Grant Land to the south-westward, and Greenland to the N.E. or eastward, but as with the whole resources of the expedition I could not hope to advance more than about 50 miles beyond the positions already attained on those coasts, and moreover, although the crew were rapidly recovering from the disease which had attacked them, they would certainly be unfit for employment on extended sledge parties next year, I decided that the expedition should return to England as soon as the ice broke up and released the ship. It was with the very greatest regret I felt it my duty to give up the very interesting further examination of the northern coast of Greenland.

Commencement of thaw.

Although pools of water formed along the tidal crack in the ice early in June, the thaw did not regularly set in before the last week of the month.

On the 1st July, water in the ravines commenced to run, after that date the thaw was very rapid both on shore and on the ice, but no decided motion took place before the 20th.

Pack in motion.

On the 23rd, with a strong S.W. wind, the pack was driven a mile away from the shore, but, as in the autumn, no navigable channel made to seaward or along the land to the westward of Cape Sheridan.

Not printed. Record left in cairn.

On the 26th, a record was left in a cairn erected on shore detailing the work performed by the Expedition, and of my intention to proceed to the southward.

Start for southward.

On the 31st, after considerable labour to clear away a passage through the barrier of floe-bergs which had so well protected us during the winter, we succeeded during a strong S.W. wind, which drove the pack out to sea, in rounding Cape Rawson and entering Robeson Channel on our return voyage.

Stopped off Cape Union.

After a 10 miles run along shore, through a fairly open channel between the pack and the cliffy ice foot bordering the coast, we were stopped by a heavy floe 1½ miles in diameter nipping against the land 4 miles north of Cape Union, and there being no other protection attainable, the ship was secured in a small indentation among a group of grounded floe-bergs lining the shore off a shallow part of the coast.

Pack in offing.

The ice in the offing drifted north and south with the tides in a nearly compact mass, that near the shore alone being loose, but in no way navigable.

Escape a serious nip.

Early in the morning of the 1st August, the heavy floe which had stopped us the previous day commenced to move and was soon travelling to the northward with the whole strength of the tide at the rate of 1½ miles an hour, scraping along the ice foot as it advanced towards the ship in a rather alarming manner. Steam being fortunately ready we cast off, and succeeded in passing between it and the shore, as after a severe wrench against a projecting point close ahead of us, a channel was opened by its rebound, as it coach-wheeled round the north point of the floe and turned in towards the land close to the position which we had vacated a few moments before.

Comparison of ordinary floe and Polar Sea ice.

The difference between an ordinary floe and Polar Sea ice was here exemplified completely; the former, composed of ice about 6 feet in thickness, on meeting with an obstruction is torn in pieces as it presses past it; the latter being some 80 or 100 feet thick, quietly lifts any impediment away out of its course and takes no further notice of it. Such was the case on this occasion: the polar floe, which we only escaped by a few yards, on nipping against the heavy breastwork of isolated floe-bergs lining the coast, some of them 40 feet high and many thousand tons in weight, which had lately formed our protection from the smaller ice pieces, tilted them over one after another and forced them higher up the land slope, like a giant at play, without receiving the slightest harm itself, not a piece breaking away. It was most providential that by its twisting round, the "Alert" was enabled to escape out of the trap in which she was enclosed.

Advance two miles.

Steering onward, so close to the shore ice-cliff, from twenty to forty feet high and having ten to twenty fathoms water alongside it, that the quarter-boats touched on several occasions, we reached within two miles of Cape Union, but in consequence of the pack remaining close in at the cape, both during the flood and ebb tides, the ship was again brought to a stop. Fortunately we were able to secure her abreast of a large water course, the stream of which had been powerful enough to undermine the ice-cliff to such an extent as to allow fifty yards of it to break away and float off to sea; this left just sufficient space in which to secure the ship along side the beach in such a manner that in the event of a nip taking place she would merely be forced on the shore before the floe itself grounded. Here we were delayed for twenty-four hours with the boats from the exposed side lowered down and moored in-shore for safety.

Unable to pass Cape Union.

At half flood, the tide running south, a narrow lead of water formed round the cape; steam was got up immediately; but owing to delay in shipping the rudder consequent on the tide running towards the bow, carrying it under the ship's bottom, the

ice closed in again before I could get round; it also cut us off from our friendly little haven, I was therefore obliged to secure the ship during the north-running tide in a slight indentation in the high cliffy ice-foot. Fortunately being within half a mile of Cape Union the run of the ice, as it passed to the northward round the Cape, kept at about twenty yards from the land until after it had passed our position; only the lighter ice pieces scraping their way along the ship's side.

Enter the pack.

As we would be exposed to the whole pressure of the ice during the south going tide; at 4 p.m., low water, it being calm and no prospect of a westerly wind to open a navigable passage, I cast off and bored a short distance into the pack with the purpose of allowing the ship to drift round the cape with the flood or south going tide. The ice carried her with it about a quarter of a mile distant from the land, with no navigable water in sight, the whole pack moving steadily together without nipping to any great extent. As we passed we noticed that the front of the ice-foot was perfectly smooth and would afford no protection whatever if we were obliged to leave the pack.

Drift round Cape Union in the pack.

Regain the shore water

As the tide slackened we succeeded with great trouble in steaming out of the pack just as the ice commenced to set to the northward with great rapidity. As it remained slack for some 20 yards from the beach, we were able to proceed slowly to the southward close to the ice foot; the midship boats being turned in-board, but the quarter boats which could not be protected, being in constant peril of a squeeze. The water channel widened considerably as we approached Lincoln Bay, and we crossed it without any trouble, and arrived within 5 miles of Cape Beechy before the tide turned to run south again, when I secured the ship alongside a heavy polar floe-piece, with the hope of again drifting south, but finding that the lighter pieces of ice were drifting faster and gradually enclosing us, I was obliged to cast off, and with much trouble succeeded in reaching the north side of Cape Beechy, before the north running tide made at noon, August 3rd.

Pass Lincoln Bay.

Stopped by the ice south of Cape Beechy.

After two hours' waiting, there being plenty of water space to the northward, a channel opened and allowed us to get round the Cape. Here the cliffy ice-foot comes to an end with the precipitous land. South of the Cape the land slopes down to the shore line, and is fronted by a breastwork of broken off floe-bergs similar, but somewhat smaller, than those lining the shore of the Polar Sea; among these the ship was secured in three fathoms water within twenty yards of the shore, a mile south of the Cape, and considering our much more exposed position during the winter, I thought the ship secure.

During the 4th of August the weather was overcast with snow squalls from the S.W., with a low barometer but not much wind. As the ice had closed in and locked the ship up completely, the sportsmen visited the lakes where three musk-oxen had been shot the previous summer. A number of geese were found all unable to fly, the old ones moulting were nearly featherless, and the young ones not yet having grown theirs; consequently fifty-seven were captured, a very welcome supply for the invalids, of whom we had ten still remaining.

Communicate with "Discovery"

The ice remaining close, and being only twenty miles from the "Discovery," Mr. Egerton, with a seaman for a companion, was sent to her on the 5th of August with orders for her to prepare for sea. They had a rough and troublesome walk over the hills, but arrived the same evening.

Pack in the offing.

During our detention at this position the pack in the offing drifted up and down the strait with the tide, the wind having the effect of increasing the speed of the current, and the duration of its flow both towards the north and the south. Although the ice generally was of a considerably lighter character than that in the Polar Sea, or at the northern entrance of Robeson Channel, a number of heavy Polar floes passed us, driven to the southward by the northerly wind, and set into Lady Franklin Sound and Archer Fiord rather than down Kennedy Channel. In fact, that sound may be considered as a pocket receiving all the heavy ice driven south through Robeson Channel, and retaining it until the prevailing westerly winds carry it to the northward again and clear out the Sound ready to be re-filled when the north wind returns. It is only during seasons when northerly winds prevail considerably over the westerly ones that the heavy polar ice is carried south in large quantities into Smith Sound and Baffin Bay.

Northerly gale. Pressure of the pack against stranded floe-berg.

On the 6th of August the wind increased considerably from the north until it blew a gale. During the height of the flood or south going tide a succession of heavy floe pieces passed us drifting down the strait, toying with our barrier of outlying protections and turning one large one completely topsy-turvy. It was firmly aground in 12 fathoms water on an off-lying shoal some 200 yards from the main line of the floe-bergs, and on this and the previous days had been of great service in keeping the line of the drifting pack at a safe distance from us; but on this occasion the point of a large floe which was drifting south close in-shore brought the weight of the whole pack on the doomed mass,

as it received the pressure the floe-berg was reared up in the air to its full height of at least 60 feet above water, and turning a complete somersault fell over on its back with a tremendous splash, breaking into a number of pieces with a great commotion and raising a wave sufficiently to roll the ship considerably.

Ship nipped.

Our protecting floe-berg carried away, the ice moved in, forcing the lighter floe-bergs one after the other, as they became exposed farther inshore, and at last nipped the ship slightly.

This evening Lieutenant Rawson and two seamen arrived from the "Discovery" with news of the Greenland division of sledges.

Nip eased off.

On the morning of the 7th of August, with the wind blowing slightly off the land, the ice eased off shore, and cleared the nip round the ship, but did not allow me to move to a more sheltered position.

In the afternoon a temporary opening occurring, steam was raised and the rudder shipped, but owing to some of the ropes fouling, the latter was not ready before the ice closed in and imprisoned us again.

During the night the wind increased considerably, and with the south running tide the ice was being carried past us at the rate of 2 miles an hour.

Ship nipped by grounded ice.

Owing to several heavy pieces grounding outside our line of barrier ice, the inner edge of the pack was guided more towards our position, and at last two heavy pieces wedged themselves in against the ship, the inner one grounding alongside the ship after forcing her very close to the shore, and nipping her to such an extent that the ship was raised bodily 3 feet. As the tide rose the lighter ice in-shore gradually forced its way under the ship's bottom and relieved the pressure somewhat; so that after four hours she was only raised about 6 inches above her usual draught of water.

Cutting away grounded floe-berg.

As there was now no hope of releasing the ship, except by cutting down the heavy piece of ice which was aground outside us, all hands were set to work with pickaxes to lighten it. On the 10th of August, after three days' work, the ice having been sufficiently reduced, floated at the top of high water and released the ship; the main pack moving off shore at the same time, we advanced five miles, and on the following day, after much trouble, succeeded in joining company with the "Discovery."

Arrive at Discovery Bay. Prepare to cross to Polaris Bay.

Sending all my sick men to the "Discovery," the "Alert" was secured at the entrance of the harbour ready to start for Polaris Bay to relieve Lieutenant Beaumont immediately the ice permitted me to cross; but his arrival on the 14th of August, as before stated, fortunately rendered this passage unnecessary.

The "Discovery" having embarked her coals and provisions, both ships were now ready to continue their voyage to the southward, but although water was observed in Kennedy Channel, the whole of Lady Franklin Sound remained filled with the ice brought to the southward by the late northerly gale.

Both ships tail on shore.

While waiting, ready to start, each of the ships tailed on shore at nearly low water, but floated again without damage.

Cross Lady Franklin Sound.

We were delayed here with calm weather and consequent little motion in the ice until the 20th of August, when, a chance offering, we pushed our way through the pack, which, gradually opening as we advanced, led us into comparatively open water off Cape Lieber, where a strong south-westerly wind had been blowing for several days, but had not been able to force its way across the ice in Hall's Basin.

Pass Cape Lawrence.

As we neared Cape Lawrence, the ice, which had been getting closer as we advanced south, became so close that we must either return north, run into the pack, or secure the ships to some of the grounded floebergs or icebergs. I chose the latter, and entering the bay immediately south of the cape, we followed the coast until we found ourselves in a large inner basin perfectly land-locked, and I made the ships fast with perfect confidence, although with the spring flood-tide the ice was floating sluggishly in and gradually filling up the bay.

"Alert" pressed on shore.

It happened, unfortunately, that at the very top of high-water a rather insignificant-looking piece of ice pressed against the ship, when the floe-berg in-shore of us, and against which the ship was resting, having floated with the spring tide, allowed itself to be pressed in-shore, and suddenly we found the ship aground forward with deep water under the stern.

Before any means could be taken to release her from this position, the tide had fallen fourteen feet at low water, leaving the fore foot and keel bare as far aft as the fore channels; the ship lying over on her bilge at an angle of twenty-two degrees.

"Alert" hauled off at high water.

As the tide rose, the ship was lightened, the cables hauled aft, and the anchors lowered on to suitable pieces of ice. One of these was then hauled astern to a proper position, when by blowing up the ice the anchor was laid out with great ease. At high water the ship was hauled off without having received any injury.

On the 22nd of August a S.W. wind opened a passage again, of which immediate advantage was taken, and we proceeded to the southward as far as Cape Collinson with only the ordinary troubles in ice navigation, during thick snow storms, misty weather, and strong head winds.

Off the Cape, owing to "Alert" being obliged to back astern to escape a nip, the two ships fouled for a few moments, and the "Discovery" lost a boat's davit, but by smart and skilful management saved the boat. The ships foul off Cape Collinson.

I may here add that such has been the skill displayed by the officers of the watches of the "Alert" and "Discovery," although the two ships have frequently been necessarily within touching distance of each other, and of the ice cliffs and bergs, this is the only accident of consequence which occurred during the voyage. Careful conduct of officers of watches.

The ice closing in ahead, the two ships were made fast inside some grounded ice-bergs in Joiner Bay, one mile north of Cape McClintock. Stopped off Cape McClintock.

In Rawlings Bay, south of Cape Lawrence, icebergs are found for the first time on coming from the northward. All to the northward may be considered as floe-bergs. Few even of the initiated can distinguish one from the other, so like are they; and certainly any stranger would be deceived, the floe-bergs being frequently larger than the ice-bergs. Northern limit of ice-bergs on west side of channel.

The ice-foot is also totally different; being formed by the pressure of lighter ice it does not project into such deep water, consequently, whereas we could secure the ship alongside the ice-foot in Robeson Channel with confidence of her not grounding, in Kennedy Channel and all parts to the south of it there is only one fathom water alongside the icy cliff at low water. Different formation ice-foot.

Starting again in the evening; as an increasing S.W. wind gradually opened the ice to the southward, we crossed Scoresby Bay, which extending from fifteen to twenty miles in a S.W. direction was perfectly clear of ice; the fresh breeze blowing down it raising a sea which caused the ships to pitch slightly, and materially stopped their speed through the water. Cross Scoresby Bay.

Approaching Cape Frazer the wind was blowing a whole gale, and I was forced to expend much coal in reaching Maury Bay immediately north of it, and in which the two ships were anchored among a lot of grounded ice, but the squalls off the land rendered it anything but a safe or comfortable position. Arrive at Maury Bay.

We were delayed three days rounding Cape Frazer and Cape Hayes, the turning point of the channel, and consequently a troublesome piece of navigation. Round Cape Frazer.

On the 25th, after twice being driven back into Maury Bay, we succeeded in securing the ships inside some grounded icebergs near Cape Louis Napoleon, the same in all probability that sheltered us when bound to the northward the previous spring.

Much has been said concerning the expected difficulty of passing Cape Frazer, on account of the two flood tides, one coming south from the Polar sea, and the other north from the Atlantic, being supposed to meet there, and by so doing collect a quantity of ice in the neighbourhood. Were ice navigation dependent on tidal currents alone, then at the position of slack water, where there is a minimum ebb and flow, a vast quantity of ice might be collected by the two flood tides, but on the other hand there would be an equal chance of the two tides carrying it away in opposite directions; however, as wind is of far greater importance than tidal movement, the case need not be considered.

The two tides do meet at Cape Frazer, the actual position varying a few miles north or south according to the prevailing wind, and also the ice is certainly accumulated immediately about and south of the Cape in great abundance. But this is owing to the ending of Kennedy Channel, and the strait widening considerably at that place into Smith Sound proper. While many causes tend to keep narrow channels clear, enlarged seas with narrow outlets are naturally encumbered with ice. Polar Sea and Atlantic tide meeting at Cape Frazer. Enlarged seas encumbered with ice.

I found no greater danger or trouble in passing Cape Frazer than in navigating elsewhere, except from what is caused by that cape being the turning point of the coast line, where no one wind blowing up or down the strait is able to clear away the ice on the north and south sides of the cape at the same time.

Struggling slowly and patiently along, gaining about one mile a day by moving forward from the protection of one stranded iceberg to that of another, as slight movements in the ice during the calm weather allowed, and although obliged to enter the pack occasionally, always keeping as near the shore as prudent, we rounded Cape Louis Napoleon, and on the 29th arrived at Prince Imperial Island, in Dobbin Bay, every one heartily thankful to be out of the pack, clear of the straggling icebergs, and for the ships to be secured to fixed ice once more. Arrive at Dobbin Bay.

During the previous week we had experienced much misty weather with a heavy fall Snowfall.

of snow, measuring 5 inches, which changed the whole aspect of the land by re-clothing the richly-tinted stratified mountains with their winter garb, from which they had only been free for a short seven weeks, afterwards the snow only melted slightly in the low lying valleys.

A northerly wind now set in, not strong enough to affect the movements of the ice materially, but sufficiently so to clear the atmosphere and lower the temperature considerably below freezing-point; after this date the young sea ice formed continually day and night.

As the mist cleared away it disclosed a fine panorama of lofty snow-clad mountains with glacier-filled valleys intervening. One large one extending to the shore discharges numerous icebergs into Dobbin Bay.

Empress Eugénie Glacier.

This, the largest discharging glacier on the west shore of Smith Sound, was named after the Empress Eugénie, who, besides taking a personal interest in the expedition by her thoughtful present of a number of homely but most useful articles, added considerably to the comfort and amusement of each individual.

Cross Dobbin Bay.

On the 1st of September we crossed Dobbin Bay, and succeeded in securing the ships to an iceberg aground only a quarter of a mile from the depôt of provisions left by us the previous Spring a few miles north of Cape Hawks; but such was the thickness of the newly formed ice that boat work was nearly out of the question; by working in the cracks opened by the ebb tide some of the provisions were embarked; but there is still a boat and a large quantity of biscuit left on shore there.

Unable to visit cairn.

The same reason prevented my landing on Washington Irving Island and visiting our own cairn until the third day, when the Spring tide having opened a water passage, I found that our notice had not been visited since we left it.

Cairns on Washington Irving Island.

The two old cairns erected by former travellers were again visited; the lichens which had spread from stone to stone proving that they are undoubtedly of very ancient date.

They were probably erected to mark the farthest north point reached by one of our enterprising and gallant predecessors who never returned home.

Round Cape Hawks.

On the 3rd September a lane of water opening along shore to the westward of Cape Hawks, every exertion was made to reach it, but owing to the newly made ice, which by cementing together a number of loose pieces of old ice formed a barrier between us and the water, we only succeeded after long perseverance in ramming our way through it at a large expenditure of coal. After rounding the Cape, the pack by drifting away from the land had left unfrozen water and numerous detached small floes, which forced us to make a very serpentine course, and occasionally to pass within thirty yards of the low ice-foot on the shore, fortunately always finding deep water.

The outer pack, consisting of heavy ice, was closely cemented together by this year's frost; it contained fewer icebergs than we observed last year.

Allman Bay.

We succeeded in reaching Allman Bay, half-way between Cape Hawks and Franklin Pierce Bay, but here the water ended, and the new ice was so strong that I thought it better to wait for the chance of an opening instead of forcing our way through it with full steam. On the following day, no sign of an opening occurring, and wishing to get to a more sheltered position on the western side of the bay, the "Discovery" being better adapted for the work than the "Alert," led the way under full steam forcing a canal through the ice, which was from 1 to 3 inches thick. She was several times completely stopped, until with all hands running from side to side on the upper deck and rolling the ship, she cleared herself and obtained headway again.

At the head of Allman Bay we found a long valley, leading down from the lofty hills far back in the interior, filled with a gigantic glacier, probably extending eastward nearly to Dobbin Bay. It was named after Mr. Evans, the President of the Geological Society.

Water under glaciers when the temperature of air is below freezing point.

In the Bay the temperature of the surface water was 32 degrees, whereas since the frost had set in we had not met with any above 30. On testing, it was found to be nearly fresh, which fully accounted for the increased thickness of the newly formed ice. We afterwards found the same phenomenon in the neighbourhood of each glacier stream that we passed, proving that the water under the glaciers being cut off from the increasing cold remains unfrozen, and running after the temperature of the air is considerably below freezing point.

Norman Lockyer Island.

The ice prevented our further movement until the 6th September. Early on the 7th, after one halt to allow the ice to open, we reached Norman Lockyer Island, with water channels for a third of the way across Princess Marie Bay. The season was now getting so late that one false step would probably entail our passing another winter in these seas without any adequate result being derived; therefore before attempting to

cross the bay, I walked to the summit of the island with Captain Stephenson, and from there we had the cheering prospect of seeing a large space of open water some 20 miles distant from us, which we knew would extend to the entrance of Smith Sound, with only a few troublesome looking nips between us and it. Making a signal to the ships, we hurried on board, and with the exception of one nip, which cost us an hour to clear away with all hands on the ice, and the "Discovery" charging at it repeatedly with full steam, we succeeded in getting two-thirds of the distance across the Bay, but there we were stopped by three extensive Paleocrystic floes which toggled in between some grounded bergs and Cape Victoria, prevented the ice from drifting out of Princess Marie Bay. The open water was now in sight from the mast-head, but the supply of coal was getting so low, that if we did not succeed in releasing the ships, the allowance for the second winter would have to be much reduced.

On the 9th, as the ice moved at the change of tides, we advanced about a mile.

Cross Princess Marie Bay.

On the morning of the 10th, observing that the heavy ice was likely to pass clear of the icebergs which imprisoned it, steam was got up ready, and five minutes after the channel was opened we passed through and found ourselves clear of Cape Victoria.

Round Cape Victoria, charging the last barrier.

After this there was only one serious obstacle to our advance: owing to the very calm weather the new ice had now frozen so strong that full steam was always necessary, particularly so wherever we had to force our way through ice where scattered pieces of old ice had been re-frozen closely together. At our last barrier of this kind, after the "Alert" had repeatedly charged the nip with full steam and considerable speed on, with no result, the "Discovery" ranged up alongside, and there being a narrow piece of heavy ice which would prevent the two ships actually touching, we made a charge together, and succeeded in forcing the barrier and gaining the open water beyond.

Open water.

From here the water channel permitted me to make a clear run for Cape Sabine, the ice opening as we advanced until none was in sight from the mast head.

On passing the entrance of Hayes Sound a considerable quantity of ice was observed some distance inside it.

The navigation of Kennedy and Robeson Channels.

In comparing the voyage of the "Polaris" and that of the "Alert" and "Discovery," I believe that a vessel might have passed up the channel with equal fortune as the "Polaris" without encountering ice during the S.W. gale we experienced in the middle of September, 1875. The heavy sea which on that occasion was produced in Robeson Channel indicated that there was a considerable stretch of clear water to the southward. The difficulty would be the choice of a starting point so late in the season after the frost has set in. If carefully navigated, a vessel, although kept ready to make a start, ought by that time to be secured in a sheltered position fit for winter quarters; and, therefore, would most probably be unable to reach the channel of opened water when it formed. If incautious, she would be as helpless in the pack. The best starting points are Port Foulke and Port Payer, at the entrance of Smith Sound.

The "Polaris'" quick passage north was entirely due to her leaving the entrance of Smith Sound at an opportune moment late in the season; had she left at any other time she would have experienced the same trouble in getting north in 1871 as in returning south the following year. There was as much ice in the channel in 1871 as in 1872—75—76. To the latitude of Polaris or Discovery Harbour, if no accident happens to the ship, the passage may probably be made with perseverance most years by starting early in the season, but it will at all times be a most dangerous one.

In Robeson Channel the difficulties are greatly increased, and the passage may be said to depend as much on a fortunate combination of circumstances as on skilful navigation. The present expedition was 25 days in going and returning between Cape Sabine and Discovery Harbour, the distance being 250 miles; 7 days in proceeding from Discovery Harbour to the Arctic Sea, and 12 days in returning, the distance being 76 miles.

Sail was only used once on the passage north, the distance run being 20 miles, it was never used during the passage south. It is, therefore, totally out of the question, a sailing vessel ever making the voyage, nevertheless, as full steam was only necessary on two occasions a powerful steamer is not necessary. When the ice is decidedly closing no power at present available is of the slightest use, when it is opening, easy speed generally carries the ship along as fast as the ice clears away in advance of her; it is rarely that a quick dash forward is necessary.

In a very exceptional season a ship might be carried nearer towards Cape Joseph Henry than Floeberg Beach on the west shore; and probably into Newman Bay on the east shore of the entrance to Robeson Channel; but from the experiences we have gained I most confidently report that no vessel will ever round the promontory of Cape Joseph Henry, or pass beyond Cape Brevoort in navigable water.

Mild seasons in Baffin Bay.

Every observation indicates that the last few years have been mild at the settlements on the west coast of Greenland, and open seasons with regard to the ice in Baffin Bay; little or none having been met with north of Cape York in July and August. The settlement at the Whale Fish Islands has been temporarily withdrawn, owing to the thin state of the ice rendering the fishing dangerous; and the temperature of the water as we proceeded south, through Baffin Bay, was so high that navigation could scarcely be interrupted off Disco before the end of the year; indeed, the Inspector intended to be absent in an open boat in the month of November. With a maximum body of water the ice formed on it in one winter will be considerably lighter or thinner than it would be, had a quantity of ice been left floating about on its surface ready to be re-frozen thicker, and cemented with the new ice into one floe during the coming winter. Thus, one open season certainly leads to another; and unless fortuitous circumstances occur, such as continuous S.W. gales, during the summer months, the season of 1877 must be a very open one in Baffin Bay.

North of Smith Sound the season is probably entirely different to that of Baffin Bay, for the same northerly winds that carry the ice to the southward towards Davis Strait, must fill up Smith Sound with heavy Polar ice and produce a cold season. Southerly winds which keep the ice north in the Bay would as certainly clear out the channels to the northward, empty the ice into the Polar sea, and produce a milder season than usual.

Esquimaux migration.

From Hayes Sound to Cape Beechy, in latitude 81° 52′ N., where Robeson Channel is only 13 miles across, numerous Esquimaux remains stud the whole line of the west shore of Smith Sound. To the southward of Cape Beechy the coast line affords fair travelling, to the northward the precipitous cliffs cut off all further advance, except during the depth of winter, when the ice in the channel is stationary. A very careful examination was made of the coast north of Cape Union, and I can report with confidence that Esquimaux have never had a permanent settlement on that shore.

All the facts collected by our numerous observers lead me to conclude that the wanderers crossed Robeson Channel from Cape Beechy to Cape Lupton, where the Polaris Expedition discovered their traces.

Drift wood, evidence of the rising of the land.

The few pieces of drift wood, all of the fir or pine species, that have been obtained on the shores of the Polar Sea have evidently drifted to the position in which they were found from the westward. One piece was obtained lying on the surface of the sea ice itself, two miles distant from the land, the rest were found on the shore at different heights above the sea level up to 150 feet; the former was perfectly fresh with the bark on; the latter in all stages of decay, usually imbedded in the mud of dry ancient lakes evidently formed by the rising of the land, and of very great age. Besides these evidences of the rising of the land, the clearly defined smoothing of the rocks at all the prominent capes, from the present ice level up to 300 and 400 feet until the marks are lost in the gradually decomposing rocks, caused by the pressure of the bordering ice-foot and the grounding ice as it is forced against the land by the drifting pack; and the numerous sea-shell beds and mud deposits at high elevations was most noticeable.

Thickness of ice in winter.

At Floeberg Beach the salt water ice formed during the winter attained its maximum thickness of 75½ inches early in June. In a fresh water lake at the same date the ice was 79½ inches thick, with 12 feet depth of water at a temperature of 32° below it. This proves decidedly that the deep lakes do not freeze to the bottom during the winter.

Temperature of the earth

The lowest temperature registered by a thermometer buried 2 feet in the ground beyond the influence of any sudden variation was 13 degrees below zero; 59 degrees warmer than the air at the time. It rose gradually as the summer advanced, and at the end of July had risen to 29·5°. By that time the ravines had nearly stopped running, and the weather was becoming gradually colder.

The sun's rays were most powerful on the 13th and 21st June, when a thermometer, with the blackened bulb in vacuo, registered +128 and +129 degrees, the temperature of the earth's surface at the time being +27 and of the air +34 degrees.

Temperature of the sea.

The coldest temperature of the sea-water during the winter was 28·25°, the same at all depths. On several occasions the Negretti and Zambra reversible thermometer showed that the temperature of the surface water, south of Robeson Channel, was colder than that of the underlying stratum, the difference amounting on one occasion to 1½ degrees Fahrenheit.

Tides.

At Floeberg Beach the time of high water full and change, 10h 44m; spring rise, 3ft. 0in.; neap rise, 1ft. 7¾in.; neap range, 0ft. 5in.

Pass Cape Sabine.

As I had deposited a notice of our proceedings at Norman Lockyer Island and intended calling at Cape Isabella I ran past our station near Cape Sabine without visiting

it; observing that the cairn was intact and appeared to be in the same state as we left it.

Payer Harbour and the neighbourhood was clear of ice.

We arrived off Cape Isabella on the 9th September, the weather still remaining calm. On landing, a small mail of letters and newspapers which had been left by the "Pandora" was found at the depôt, the dates informing us that the visit was made this year, but beyond a notice stating that if possible a duplicate box of newspapers would be landed at Cape Sabine, we found no record of her previous or intended movements. Concluding that the remainder of our mail was left at Disco, and being short of coal, and the weather very calm, I pushed on towards the Carey Islands, without losing time by visiting Littleton Island on the opposite side of the strait.

Cape Isabella. Letters.

Pass Littleton Island without calling

A southerly wind springing up, the ships were put under sail. Beating to the southward, we fetched into Whale Sound on the 11th without meeting any ice since leaving Smith Sound. The wind having freshened into a gale, I anchored in Bardin Bay on the evening of the 12th, where we observed some Esquimaux on shore, but the weather continuing very bad, I, unfortunately for them, put off communicating until the following day. On the same night the wind shifted suddenly and forced us to get under way, when the misty weather and a dark night prevented my landing at their settlement.

Anchored at Bardin Bay. Whale Sound.

The rock a-wash off Cape Powlet, the east point of the entrance on which the Esquimaux village stands, is very dangerous. There is no good anchorage obtainable outside of Tyndall Glacier; we were obliged to anchor in 23 fathoms in a position exposed to the northward, the "Discovery" making fast astern of the "Alert."

During the 13th and 14th we worked to the southward towards Wolstenholme Island with calm and light airs from the west, which prevented my reaching the Carey Islands except at a large expenditure of our rapidly diminishing stock of coal; the heavy swell left from the late southerly gale would also have prevented our landing; accordingly our letters, left there the previous year by the "Pandora," were obliged to be sacrificed.

Unable to fetch the Carey Islands.

From Wolstenholme Sound a south-easterly wind enabled us to fetch across to Cape Byam Martin at the entrance of Lancaster Sound, where we arrived on the 16th, having seen no field ice, and the temperature of the sea water ranging from 31 to 34 degrees. Steaming to the eastward on the 18th, we met another S.E. wind, which carried us into the south part of Melville Bay, and we proceeded south along the Greenland shore. I preferred re-crossing Baffin Bay rather than by standing to the southward risk getting in-shore of the middle ice on the west side.

Cross to entrance of Lancaster Sound.

On the 20th Cape Shackleton was sighted, and on the 25th we arrived at Disco, having had persistent head winds since we left the entrance of Smith Sound on the 10th. Only one light stream of ice was fallen in with all this part of the voyage.

Arrive at Disco.

Here Mr. Krarup Smith, Inspector of North Greenland, most considerately allowed us to take 30 tons of coal out of his small store, and informed me that there were 20 tons more at my disposal if I would visit Egedesminde; and in order to give the Expedition the full benefit of his presence in obtaining supplies, Mr. Krarup Smith accompanied the ship to that port. Nothing could exceed his kindness to us during our stay. Finding that several of the inhabitants of Egedesminde were attacked with scurvy, I made the Governor a present of lime-juice for general use.

Visit Egedesminde. Scurvy among Esquimaux.

From Mr. Smith we learnt that all our letters, with the exception of the few left at Cape Isabella, had been deposited at Littleton Island. Only a few letters were received at Cape Isabella, therefore a large mail of private and official correspondence has been lost.

Loss of large mail of letters, &c.

After coaling and preparing the ships for sea we left Egedesminde on the 2nd of October.

Leave Egedesminde.

On the 4th of October the two ships re-crossed the Arctic Circle, exactly fifteen months from the time of crossing it on the outward voyage.

Passage home.

Experiencing contrary winds, slow progress was made to the southward.

As the weather became warmer and damper, a few men were attacked with rheumatism and colds.

On the 12th, during a very severe gale, in which the ships were hove to under a close reefed main topsail and storm staysail, the "Alert's" rudder head sprung when the ship was in the ice, worked adrift from the irons with which it had been repaired, the lower part of the rudder being sound. As I had neglected to have the rudder pendants shackled on before leaving port, it was with no little difficulty that make-shift rudder pendants were improvised; but by their means the ship has been steered across the Atlantic, the sails being trimmed to bring as little strain as possible on the rudder.

Rudder sprung.

Ships part company.

The "Discovery" was lost sight of during a heavy gale on the 19th. During the passage, southerly winds prevailed.

The spare rudder, itself badly sprung, has been repaired, and is in serviceable condition; when it is shifted the "Alert" will be ready to proceed to Portsmouth. Captain Stephenson, before parting company, was ordered to rendezvous at Queenstown.

Services of officers and ships' companies.

Captain Stephenson.

In conclusion, it is my pleasing duty to inform you for the information of their Lordships, that one and all under my command have done their duty well and nobly, the utmost cordiality prevailing throughout the members of the Expedition from first to last. Captain Stephenson has been a most valuable colleague, and I am much indebted to him for his friendly advice, and ready help on all occasions.

Dr. T. Colan. Dr. B. Ninnis. Dr. E. L. Moss. Dr. W. Coppinger.

The executive officers have each been mentioned in the detail reports of Captain Stephenson and myself; their conduct when taxed to the utmost, under difficult and most distressing circumstances, is beyond all praise. Much as the attack of scurvy which visited us is to be regretted, it proved how valuable were the services of Fleet Surgeon, Thomas Colan, M.D., and Staff Surgeon, Belgrave Ninnis, M.D., who were so ably assisted by Surgeons Edward Lawton Moss, M.D., and Richard William Coppinger, M.D. These officers are each of great talent and high character, and have fully borne out the confidence imposed in them by the Medical Director-General; any reward that it is in the power of their Lordships to bestow on these gentlemen could not be given to more careful or zealous officers.

Lieutenant Beaumont. Lieutenant May. Lieutenant Archer.

Lieutenants Lewis Anthony Beaumont and William Henry May, who voluntarily undertook the navigating duties in their respective ships, have performed that work most ably.

Lieutenants May and Robert Hugh Archer have charted the coast line from the entrance of Smith Sound to the northward with great exactness, these officers have earned their Lordships' commendation.

Mr. T. Mitchell, Assistant Paymaster.

The Expedition is much indebted to Mr. Thomas Mitchell, Assistant Paymaster-in-charge; the departure of the Assistant Paymaster of the "Alert" has much increased his work, as the only officer of his rank in the Expedition. In order the more readily to assist me, he performed a sledge journey in the early season from the "Discovery" to the "Alert," and has since then divided his time between the two ships. He is a steady and trustworthy officer, and as such I recommend him for promotion. Mr. Mitchell and Mr. George White, Engineer, have made a most valuable collection of photographs of subjects connected with arctic life and scenes.

Mr. J. Wootton, Engineer. Mr. D. Cartmel. Engineer.

The Engineers of the two ships have always most zealously assisted, like everyone else, in the general work, and fully occupied their spare time for the benefit of the Expedition.

Mr. Geo. White, Mr. M. Miller, Engineers.

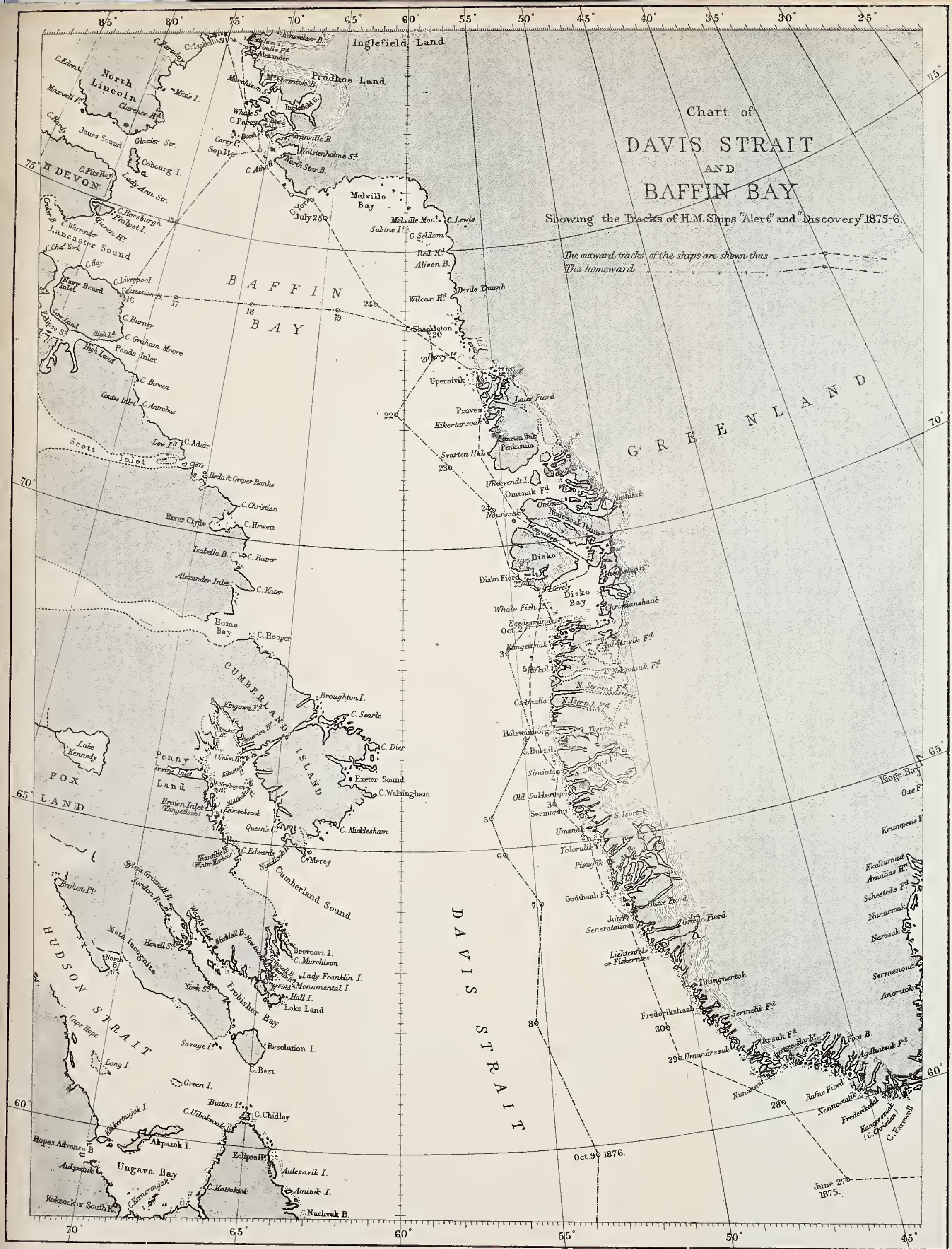
Messrs. James Wootton and Daniel Cartmel deserve great praise for the invariable excellent order in which the engines under their charge have been kept, and for the careful economy of the coal supply, a vital point in arctic exploration. Messrs. George White and Matthew Richard Miller are each careful and talented officers. I most confidently recommend the claims of these four gentlemen, who were voluntarily employed with the support sledges, to the favourable consideration of their Lordships.

Ships' companies.

The two ships' companies have conducted themselves in the most praiseworthy manner throughout, they are specially commendable for their resolute perseverance during the trying sledge journeys which have been already reported. Their good conduct and zeal entitles them to the most favourable consideration of their Lordships. A list of men specially deserving of and fit for advancement to higher rates will shortly be forwarded.

I have the honor to be,
Sir,
Your obedient Servant,
G. S. NARES, *Captain,*
Commanding Arctic Expedition.

The Secretary of the Admiralty,
London.



Prepared in the Hydrographic Department, Admiralty, from original documents furnished by the Officers of the Arctic Expedition.

Malby & Sons, Lith.

ARCTIC SEA NORTHWARD FROM BAFFIN BAY
SMITH SOUND
KENNEDY, & ROBESON CHANNELS
From discoveries made by the American expeditions under Drs Kane & Hayes 1854-61; and in the U.S.S. "Polaris," under command of C.F. Hall, 1871-2, as derived from charts published by the U.S. Hydrographic Office, April 1874.
THE COASTS OF GRINNELL LAND AND GREENLAND
North of the 82nd parallel, with the western shores of
Robeson Channel, Kennedy Channel and Smith Sound;
are from the explorations of Captains G.S. Nares, F.R.S. and H.F. Stephenson, R.N.
assisted by Commander A.H. Markham R.N. and the Officers of Her Majesty's Ships
ALERT & DISCOVERY in the British Arctic Expedition of 1875-6.
The southern entrance to Smith Sound partly from the observations of Captain E.A. Inglefield, R.N. in 1852.
Figures on the land show the heights in feet above the sea.
g. gravel, m. mud, r. rock, s. sand, sh. shells.
The Magnetic Variations are approximate only.
SOUNDINGS IN FATHOMS.
The outward tracks of the ships are shown thus
The homeward
GRINNELL LAND
GREENLAND
WASHINGTON LAND
HALL LAND
INGLEFIELD LAND
ELLESMERE LAND
SMITH SOUND
KENNEDY CHANNEL
ROBESON CHANNEL
HALL BASIN
HAYES SOUND
BUCHANAN STRAIT
PRINCESS MARIE BAY
PETERMANN FIORD
PETERMANN PENINSULA
ARCHER FIORD
LADY FRANKLIN SOUND
POLARIS BAY
NEWMAN BAY
PEABODY BAY
HUMBOLDT GLACIER
VICTORIA INLETS
DISRAELI BAY
YELVERTON BAY
Challenger Mountains
Victoria and Albert Mountains
Prince of Wales Mountains
UNITED STATES RANGE
Cape Sheridan
Cape Union
Cape Sabine
Cape Isabella
Cape Columbia
Cape Joseph Henry
Cape Constitution
Cape Independence
Scoresby B.
Dobbin Bay
Rawlings B.
Richardson B.
Bache I.
Victoria Hd
Marshall Bay
Dallas Bay
Great Mer de Glace
Hartstene Bay
Conybeare Bay
Thank God Harbour

GENERAL ORDERS TO SLEDGING PARTIES.

"H.M.S. "Alert," off Cape Collinson,
Lat. 80° 2′ N. Long. 70° 40′ W.
July 21, 1875.

MEMO.

1. The travelling parties despatched from the "Alert" and "Discovery," with the exception of those on special service, will be strictly for the purpose of exploration.

2. Every opportunity should be taken to reconnoitre from lofty positions during clear weather.

3. Although much ground is covered, there is often a loss of observation in too hasty a march. For this reason, a dog sledge travelling quickly is not so good for exploring purposes as a man party, averaging about ten miles a day. For communicating between two known positions, and along known coasts, where delay is unnecessary, dogs are invaluable.

4. When exploring, it is often impossible to obtain game, even when it is seen in considerable numbers, without stopping the whole party. The necessity of pushing ahead as fast as his other work allows, keeps the Commanding Officer fully employed, and the sudden manner in which gales of wind and fogs spring up makes the detaching a sportsman extremely hazardous. At the same time it is important to obtain fresh provisions, and also to ascertain the resources of a country, &c.; therefore a well organised chase should be encouraged, but indiscriminate shooting parties should not be allowed.

5. In equipping a travelling party for exploring an ice-bound coast, the utmost care and forethought is necessary. It is of vital importance that each party should receive the clearest and most precise instructions, and that those instructions should be fully understood and acted up to most strictly. Therefore all orders and communications relating to travelling parties, however simple the service may appear, are to be given in writing, each officer concerned retaining a copy.

6. In all cases concerning depôts of provisions, the depôt to be visited should be clearly defined both by name and description, the exact number of rations which are to be taken or deposited should be mentioned, and the date *before* which the depôt must be formed. To avoid all possible mistake, depôts should be established only by those who have previously visited the position selected. Should anyone meet a depôt party carrying out provisions for a party commanded by an officer junior to himself who may be in advance, he is in no case to interfere with the orders of the depôt party.

7. On visiting any of the established cairns a brief account of the past and intended proceedings of each party, any information likely to be of use, orders given bearing upon the provisioning of others, and a chart, however rough, of any newly discovered coast, should be left for the information of the leader or others interested.

8. A full and detailed report of the daily proceedings of the party, with a chart showing the route and any newly discovered land, is to be prepared by the officer in command, and forwarded for official information as soon after his return as possible. In preparing the chart, the coast line of bays not actually seen is only to be ticked in if the high surrounding land was seen to be continuous.

9. During the journey, the officer in command of each party is, to the best of his ability, to note daily:—

I. The nature and character of the land, obtaining a sketch, if possible.

II. The scope of the hills, whether slight or steep, cliffy, &c.

III. Observe the dip of the stratification; obtain a small specimen of the geological formation of rocks in situ, also of any drift boulders; collect plants (even the known common ones from the extreme stations), driftwood, shells, and insects.

IV. State the animals seen, and those shot.

V. Note the direction of the migration of birds or animals, what they live on, and when the young are born.

VI. The ruins of any Esquimaux encampment are to be systematically searched for stone and bone implements, &c.

VII. Note the clothing in wear by day and by night, and when any change is made.

VIII. The quality of provisions, clothing, fuel, &c.

IX. Any illness, &c., which may occur, and the remedy prescribed.

X. Any alteration in the weights carried on the sledge.

XI. State when any depôt is left or picked up, and its condition on visiting it.

XII. All observations made for latitude, meridian distance, variation, true bearings, and all angles or bearings for fixing objects, are to be detailed in full.

XIII. Note the state of the ice, whether old or new, formed during one season or more, height of shore hummocks, &c.

XIV. Tidal or current movements, &c.

Each day the following observations are to be noted :—

I. Course and distance travelled and made good.

II. Hours encamped for rest or detained by weather,

III. Hours stopped for luncheon.

IV. Hours stopped securing depôts.

V. Hours marching.

VI. Temperature of the air as often as convenient, outside and inside tent or snow hut,

VII. Ditto of sea water during the summer,

VIII. Direction and force of wind.

IX. Line of bearing of sastrugi.

G. S. NARES, *Captain,*
Commanding Expedition.

ORDERS TO CAPTAIN STEPHENSON ON PARTING COMPANY.

H.M.S. "Alert," Lying-to Harbour,
Cape Sabine,
1st August, 1875.

MEMORANDUM.

I wish the two ships of the Expedition to advance to the northward in company as far as about Latitude 82°.

2. Should we be so fortunate as to gain that locality, I intend to fix the "Discovery" in winter quarters at as early a date as possible, and then to advance farther to the northward in the "Alert."

3. Should the "Alert" be able to proceed, she is to be looked upon as an advanced depôt, from which the combined forces of the two ships are to start in the exploring journeys towards the north.

4. In the event of the "Alert" advancing beyond the reach of the men from the "Discovery," except at too great an expense of time, the crew of the latter ship is to be employed as you think best, with a view to the determination of the continuity of the coasts of Greenland, Grinnell and Grant Lands.

5. As we advance to the northward, I shall endeavour to establish the A and B depôts, of 3,600 rations each, one at the Carey Islands, the other in the neighbourhood of Dobbin Bay. These depôts are already prepared. They will be carried, one on the upper deck of each ship, and will be available in case of accident in Melville Bay or elsewhere. A boat will also be left at each of these positions.

6. Travelling depôts, of 240 rations each, will be left, if possible, at Cape Sabine, Dobbin Bay, and Carl Ritter Bay; and of 480 rations each, at suitable positions beyond the "Discovery's" winter quarters. At Cape Sabine a boat will also be landed.

7. As it is of vital importance that depôts of provisions should not be tampered with, notice concerning their positions is not to be included in the official information left in or buried 20 feet magnetic north of the established cairn. If it is necessary to leave a notice at all, it is to be buried 20 feet magnetic south of the cairn. Also, any information that it may be advisable for a time to keep secret is to be deposited in the same position.

8. It is possible that the crew of the "Alert" may have to retire on a large depôt north of Smith Sound. Therefore, immediately the "Discovery" is secured in winter quarters, a depôt of 10,000 rations, with a supply of coal, is to be established on shore.

9. In addition to the formation of this depôt, immediate attention is to be directed to throwing out hunting parties, both to the shore and on the ice. Without fresh provisions it is quite impossible to feed the dogs; therefore, the duties of pushing forward provisions for spring travelling, and preparing the ship for the winter, must be put off, if either interferes with the formation of shooting parties. If there is no choice of positions, these parties should be sent in the direction of the probable lines of spring exploration, with orders to *caché* all provisions unexpended. The orders as to the expenditure of game by the hunting parties must depend on the probable quantity

obtainable. If that is small, everything must be saved for the sick, otherwise a reasonable quantity should be allowed to be used at the time. The dogs should at once be put on regular rations. If unable to obtain food for them, and if we are likely to remain for a second winter, only the 8 strongest are to be fed from the ship's stores.

10. During the autumn of 1875, or early in the following spring, a party is to be sent from the "Discovery" to Hall's Rest, to take an inventory of the stores and provisions left there, and to ascertain how far they are available for use.

11. In order to continue the exploration of the coast of Greenland to the northward of Cape Stanton, it is important that a depôt should be established beyond that cape. After passing it, the widening of the channel will ensure good ice for travelling. In consequence of the water not freezing until late in the season, and the ice melting early, it is probable that this work can only be performed either by means of a boat and sledge combined, or by crossing the land to the eastward of Polaris Bay with a cart. If the depôt left there is intact, a party might remain and do good service until late in September, up to which time there will be sufficient light.

12. During the spring of 1876 a party from the "Discovery" is to communicate with our established post at the entrance of Smith Sound. By this party you are to forward a report of the proceedings of the Expedition, addressed to the Secretary of the Admiralty. The officer likely to be employed on this duty should superintend the landing of the travelling depôts on which he will hereafter have to rely.

13. In the event of the "Alert" advancing farther north than the "Discovery" during the present summer, a party from the latter ship is to accompany the "Alert," on board of which ship they will be provisioned. They will probably return to their own ship during the autumn; but should they not arrive, there need be no anxiety about them, as they will not be dispatched without every precaution having been taken for their safety.

14. If the "Discovery's" sledge parties are to advance to the northward from the "Alert" in the spring of 1876, I shall take care to send orders to that effect previous to the 1st of April of that year, on which date everyone is to be on board, ready for starting. Should you not hear from me previous to that date, you will know that the "Alert" has succeeded in gaining so advanced a position as to be too distant for your crew to join in the line of exploration towards the north. You will then start one sledge complete in every way, with orders to repair to a rendezvous on the west shore of the Lincoln Sea, as near as possible to Latitude 84° North. If the land north of that position continues to trend to the northward, the officer in charge is to advance as near as possible to Latitude 85° North. At his most advanced position he is to remain at least until the 15th May, and as much later as his provisions, the season, and the state of the ice will allow him.

15. A party from the "Alert" will have similar orders to the above.

16. Should the two parties not meet, and you have not previously received any news of the "Alert," the same rendezvous is to be visited at the same date in 1877.

17. It is not my intention in any case to proceed farther to the westward than the 90th meridian of West Longitude. Therefore, in the extremely improbable case of my failing to visit the rendezvous in 1877, and if you have received no news of the whereabouts of the "Alert,"—that is, after two travelling seasons, and one navigable season—you will be certain that I have advanced so far to the eastward as to be nearer to Cape Bismarck on the east coast of Greenland, than to Robeson Channel. It will then be of the utmost importance that such information should be conveyed to their Lordships without delay. Therefore, as your provisions will not admit of your searching for us during the spring of 1878, and as they might be of use to some of my men, you are to leave any provisions you can spare in depôt, properly secured; and on August 1st, 1877, proceed in the "Discovery" to the entrance of Smith Sound, where you will communicate with the relief ship coming from England that season.

If she brings no news of us, you will arrange for one of the two ships to remain for the winter of 1877-78, and for the other to proceed to England. Should the relief ship fail to arrive before the 25th August, you are to leave full particulars of the proceedings of the Expedition, and make the best of your way to England, without waiting for her.

18. During the spring of 1877, you are to keep up communication with our established post at the entrance of Smith Sound. I must leave it to your judgment whether to dispatch a party to the southward during the summer or autumn of 1876, on the chance of finding dispatches brought from England during the summer. If that season be an open one, a vessel coming from the southward might reach Cape Sabine or even Cape Prescott. It would probably be easy work to get south in a boat, but difficult to return north when the young ice is forming.

19. In the event of your being unable to escape from Smith Sound before the 20th August of 1877, you are to endeavour to communicate by boat or otherwise with the vessel coming from England, and if you are prevented from getting south during the navigable season, you are to make arrangements for abandoning the "Discovery" early in 1878, leaving that ship in a secure position and as habitable as possible.

20. I need scarcely remind you that it is impossible to leave too many notices of your movements and intentions, and of any alteration in the latter. The greater number of records deposited in conspicuous positions, the greater certainty there is that two parties will not explore the same coast.

21. All books, &c., originally belonging to the American Government Expedition, under Captain Hall, which may be recovered from the Esquimaux or otherwise, are to be considered Government property. They are immediately to be sealed up by proper officers and taken charge of.

22. In the event of your meeting any people belonging to another expedition, either English or foreign, all geographical information which may be of use to them is to be placed at their disposal, but except in the extreme case of saving life, as our men are dependent upon the provisions placed in depôt, I see no reason at present why they should be informed of the position of any of them. Every possible precaution is to be taken that none of our men have to depend on any other expedition or their depôts for relief. This order does not refer to the depôt of provisions now in position at "Hall's Rest."

G. S. NARES,
Captain.

To
Captain Stephenson, R.N.,
"Discovery."

ORDERS TO CAPTAIN STEPHENSON.

H.M.S. "Alert," Winter Quarters.
8th March, 1876.

Sir,

See page 40.

In reference to my memo. of the 1st August, 1875 (paragraph 8), in which you are directed to establish a depôt of 10,000 rations and a supply of coal on the shores of Grant Land :—

It is my direction that if the bay on the west coast of Grant Land, about 10 miles north of Discovery Harbour, is, in your opinion, a fit position for winter quarters during the coming winter, and a good locality for game, you are to embark the said depôt and coals on board the "Discovery," and have that ship ready for moving north during the coming summer, at your earliest convenience.

With reference to paragraph 12 in the same memo., which directs you to communicate with our established post at the entrance of Smith Sound; as the strength necessary to the performance of that work can be more advantageously employed in exploration, you will consider that order cancelled.

With reference to paragraph 4, you will learn from Lieut. Rawson, who accompanies Mr. Egerton, the character of the ice in Robeson Channel. As it is important that Lady Franklin Sound, Petermann Fiord, and the extreme north of Greenland, now seen from Cape Rawson, should be explored this season, you will take what steps you think proper in undertaking these duties, using the "Alert" for an advanced depôt, should you see fit to do so. The depôt at Lincoln Bay is to be interfered with as little as possible, as it may be wanted next year. Previous to receiving any communication from you, the party of men belonging to the "Discovery" now on board the "Alert" will be employed in preparing a passage across the straits from the neighbourhood of Cape Union.

The exploration undertaken by the crew of the "Alert" will be—to follow the north coast of Grant Land now trending to the N.W., and, should it turn to the southward, a party will endeavour to proceed to the northward over the ice.

I have the honour to remain, Sir,
Your obedient Servant,
G. S. NARES,
Captain R.N.
Commanding Expedition.

To
Capt. H. F. Stephenson, R.N.,
"Discovery."

H.M.S. "Alert" at Floe-Berg Beach,
Lat. 82° 27′ N., Long. 61° 22′ W.,
30*th April*, 1876.

MEMORANDUM.

Lieutenant Beaumont with four sledge-crews under his command left H.M.S. "Alert" for the North Coast of Greenland on the evening of the 20th April, 1876.

His supplies, with an additional depôt, to be left at Repulse Harbour, admit of the absence of ten men and two officers until the 15th June, by which day they are ordered to return to Polaris Bay.

George Emmerson, in command of six men, was to leave the party on April 26th, with instructions to return to H.M.S. "Alert." On his arrival he will be directed to convey to Repulse Harbour the additional depôt of provisions required by Lieutenant Beaumont, and after depositing them, to proceed to Polaris Bay. Dr. Coppinger, in command of four men, will accompany the extended party until the 3rd May. He will then proceed to Repulse Harbour, arriving about the 10th May.

His original instructions ordering him then to return to this ship have been cancelled. He is now ordered to proceed to Polaris Bay, and there wait for further instructions from you.

Both his and George Emmerson's crews may be expected to arrive there not later than the 15th May, after which day they will be dependent for provisions either on the depôt or the "Discovery." I enclose a copy of the orders under which Lieutenant Beaumont and those under his command are acting. *See page* 338.

After the return of the extended party in June, a boat will be required to ensure their safe passage across Robeson Channel from Polaris Bay to Discovery Harbour.

Whether you despatch one across the strait before the ice breaks up at the latter end of May, or knowing the ample store of provisions existing at the Polaris Depôt, wait until the water in July allows the boats to be conveyed across with greater ease, I must leave you to decide.

Should you adopt the latter plan, which necessitates a number of men lately returned from a long journey remaining for probably a month on the Greenland shore, it is advisable that a medical officer should remain with them.

I am very anxious that the neighbourhood of Petermann Fiord should be explored this season, in order to determine whether it affords a practicable route for sledges proceeding towards the East Coast of Greenland.

The apparent abrupt ending of the inland ice of Greenland on the Southern shore of the Fiord is very remarkable, and, besides affording an important and interesting study, leads me to expect either that a Channel exists, or that the sea will be found at no great distance to the eastward.

The officer in charge of the party should, on every clear day, attain the highest look-out station possible, sacrificing even distance travelled in advance if necessary.

G. S. NARES,
Captain R.N.,
Commanding Arctic Expedition.

To Captain Stephenson, R.N.,
H.M.S. "Discovery."

H.M.S. "Alert," at Floe-Berg Beach,
Lat. 82° 27′ N., Long. 61° 22′ W.,
30*th April*, 1876.

Sir,

(1.) On your return to H.M.S. "Discovery," you are to make arrangements for that ship to remain in Discovery Harbour during the coming winter.

(2.) During the ensuing summer I intend to move H.M.S. "Alert" to the southward; and should the reports from the different travelling parties now absent indicate that a further exploration can be undertaken with advantage next year, I shall winter in Discovery Harbour.

(3.) In the endeavour to move from our present position should the "Alert" be drifted in the pack to the southward of Discovery Harbour, and unable to join company with you, I shall secure her in the first sheltered position that offers itself, and, if possible, on the western shore of the channel. In this case you are to employ your crew in continuing the exploration of the land in your neighbourhood; and the crew of the "Alert" will open up communication with yourself and Port Foulke.

(4.) If the channel between Discovery Bay and Cape Morton is navigable for a boat during the summer, I wish you to despatch a party specially equipped to explore the nland ice-cap to the southward of Petermann Fiord. The officers employed on this duty should, previous to their departure, study the reports of the previous attempts which have been made to penetrate into the interior of Greenland, but hitherto without success.

The best season for this exploration appears to be between the first week in July and the early part of August.

(5.) Immediately after the return of the travelling parties to the "Alert," at the end of June, an 8-man tent will be fixed at the provision depôt in Lincoln Bay, and another at some convenient intermediate station between it and this ship.

If you can establish a depôt of provisions and a tent at one or more positions between Lincoln Bay and the Discovery, an important and easy means of communication will exist between the two ships during the summer.

Any travelling party leaving the "Discovery" on the 1st July may depend upon finding the route established north of Lincoln Bay.

(6.) No detached party is to be beyond the reach of immediate recall after the 10th August.

G. S. NARES,
Captain R.N.,
Commanding Arctic Expedition.

To Captain Stephenson, R.N.,
H.M.S. "Discovery."

ORDERS AS TO STORES IN POLARIS BAY

H.M.S. "Alert," at Floe-Berg Beach,
Lat. 82° 27′ N., Long. 61°22′ W.,
30th April, 1876.

MEMORANDUM.

The supplies of stores and provisions left in the Depôt at Polaris Bay by the late American Arctic Expedition may be used if requisite by any travelling party arriving there from the "Alert" or "Discovery."

The Commander of each party is held responsible that no waste or damage of either the provisions or fuel occurs during his stay. He is to separate from the store such supplies as may be required to place his crew on the regulated scale of rations, and secure the remainder in the best manner possible.

A book will be left at the store in which the Commanding Officer is to note the date of his arrival at and departure from the Depôt, and the quantity of supplies he has used.

He should also note any information in his possession relating to the store or the neighbourhood which might prove of value to future visitors.

A copy of each entry in the Store Book is to be given to his Commander on the return of the party to their ship.

G. S. NARES,
Captain R.N.,
Commanding Arctic Expedition.

To Captain Stephenson, H.M.S. "Discovery,"
and all in command of Sledge Parties
arriving at the Polaris Bay Depôt.

REPORT OF GENERAL PROCEEDINGS.

From 26th August, 1875, *to 30th March*, 1876.

H.M.S "Discovery," at Discovery Harbour,
(Latitude 81° 44′ North, Longitude 65° 3′ 14″ West),
30th March, 1876.

Sir,

I have the honour to inform you of our general proceedings since your leaving us in winter quarters on the 26th of August, 1875; and in doing so it will be more convenient to write a detailed account of our monthly occupations.

August, 1875.

2. The departure of the "Alert" on the 26th caused a feeling of depression throughout the "Discovery." Having struggled together so successfully thus far, the separation of the two ships now appeared to sever the connecting link between them. I explained in a few words to the ship's company, the position attained for our winter quarters had fulfilled the highest expectations of the authorities in England; that it was not anticipated you would get beyond the reach of our sledging parties next spring, so as to enable us to assist in the final efforts to the Pole; that we had our share of work and exploration to perform, which all must face cheerfully, and determinedly, besides preparing the ship for the winter. This little harangue had the desired effect, for, giving three cheers for ourselves, we "spliced the main brace" and piped down.

3. In endeavouring to raise the screw on the 26th for the winter, we found the guides on the foremost stern-post so much bent with the ice, the screw was immovable. *Vide* engineer's report on the engines. *Not printed.*

September, 1875.

4. Up to the night of the 5th, during which the ship was frozen in, a great deal of loose ice was observed to drift in with the tide at the eastern entrance, rounding Bellot Island, passing out through the western entrance, or else drifting up to the head of the fiord (*vide* hydrographical report). We did not experience any inconvenience from this beyond having to keep a sharp look out upon our boats, the trend of the land generally pushing it clear of the anchorage. *Not printed.*

5. To the end of September the ice had given us no opportunity of exploring the west coast of Robeson Channel to the northward, or Lady Franklin Sound, to the westward, owing to the young ice forming, making it difficult for boat navigation; at the same time the amount of water in both those channels, which was observed throughout the month, making it impossible to travel without them.

6. A good survey of Bellot Fiord, which extends for 15 miles, has been made by Lieutenant Robert H. Archer, and a correct coast line of 20 miles has been laid down (*vide* Angle Book and accompanying Chart). No glaciers have been seen in any direction from the tops of the highest mountains visited. Small icebergs only have been seen in Robeson Channel and Lady Franklin Sound. No mark or sign that Esquimaux have ever visited this neighbourhood has been found. Pieces of drift-wood have been picked up in various places—one piece in Musk-Ox Bay, by Lieutenant Fulford, measuring 33½ inches long by 16 inches in circumference. *Not printed.*

7. The interior of the country within a ten miles' radius of the ship has been largely explored by shooting parties. It is mountainous and rugged in the extreme, intersected in all directions by valleys and defiles. We have proved beyond doubt the land abounds in musk oxen, hares, ptarmigan, snow-buntings, and lemmings: of the latter we have not obtained specimens, but have seen plenty of tracks; and two sorts of seals are to be found in the bay.

8. The ship, having been frozen up, has been successfully housed in and warmed. Everything that could possibly add to the comfort of all, as well as to individuals, has been most carefully and considerately done by the able First Lieutenant.

9. On the 16th open water was observed well inside the breakwater, only distant a mile from the ship, extending from Bellot to Dutch Islands, preventing a landing on the last-named place. On the 17th there was open water in the western entrance, preventing our landing on Sun Cape. From the continued mild weather the hills all look of a dirty brown colour. On the 20th the ice in the bay was rotten in many places and broken away from the shores, owing to the spring tides, and a great deal of open water was observed in Lady Franklin Sound. On the 25th I walked round Bellot Island, accompanied by Lieutenant Archer. The ice was piled up in huge masses against the land on the south side, the shores of which are steep and precipitous, making the walking very laborious. Water lanes and sludge ice close into the land. Observed current running to the westward with large fields of floe ice in Lady Franklin Sound. On the 27th water was seen all along the land on the north side of Lady Franklin Sound from Sun Bay to the eastward.

10. A dog-sledge, with a party consisting of five officers and myself, have been up the fiord surveying and exploring, this being the only place practicable, and been absent from the ship six days during the month.

11. A depôt of 10,000 rations, with fuel, or six months' provisions for sixty men, has been landed, as well as a large majority of other stores, placed under cover of a tent of the ship's sails, in case we are burnt out, which is now our greatest danger.

12. A magnetic observatory has been erected on shore, measuring 12 feet by 7, sides 6 feet, with sloping roof of coal-bags, under the supervision of Lieutenants Archer and Fulford; and observations for dip, horizontal, and total force have been taken by those officers.

13. The pendulum-house which was brought from England has been put together on shore, and the stand for the pendulum and clock firmly fixed. Owing to the oil in the works of the clock freezing we were compelled to bring it on board for the purpose of cleaning. The temperature inside the pendulum-house at the time was — 5°.

14. The thermometer-stand has been landed and erected 5 feet from the ground. The meteorological observations that are regularly taken and registered just before midnight by Dr. Belgrave Ninnis will add much to the store of knowledge gained by this link of the expedition.

15. A tide-guage has been erected over the stern of the ship, consisting of a copper wire weighted at the bottom, and passing over a roller fixed on the taffrail, with a 14-lb. lead attached to the end. A scale marked in feet and inches fixed on the stern, with a pointer on the wire to indicate the rise and fall against the scale, the hourly rise and fall, as well as the times of high and low water where the ship wintered, has been carefully registered since the 17th. Lieutenant Robert H. Archer has undertaken these observations (*vide* his book of tide diagrams). This is a subject of much interest and importance, but I fear the great distance the ship is from Robeson Channel or Lady Franklin Sound will prevent any connected chain of observations being made as to the set of the tides in either of those channels.

Not printed.

16. The heavy work being nearly finished, on the 25th we gathered in all leather boots, serving out the winter cloth boots and sealskin suits.

17. The sledges, with everything connected with travelling equipment, including the dogs, are in the highest state of efficiency.

18. The weather during September has been decidedly warm and muggy on the whole, particularly to those who have had manual labour to perform, but singularly devoid of sunshine—so gloomy that we have been unable to obtain any observations.

19. The number of days on which snow fell was eight during the month.

20. Thickness of ice formed in the harbour, 10¾ inches.

21. Coal expended during the month, 3 tons, 5 cwt., 2 qrs. Remaining on charge, 117 tons, 10 cwt., 2 qrs.

22. The amount of fresh meat on charge is 3,516 lbs.

23. Game killed in the neighbourhood between the 26th of August and the 30th of September, 7 ptarmigan, 5 eider-ducks, 11 hares, 32 musk-oxen, 6 seals. Conveying on board musk-oxen killed at some distance from the ship has been a work of great toil over so difficult a country, and has tried the enduring powers of many.

October, 1875.

24. Up to the 16th of October, the day on which we lost the sun, we were unable to lay out depôts on the west coast of Robeson Channel, owing still to the amount of water along the shore, as well as the sludgy state of the ice, which rendered it impracticable for either boats or sledges to make any progress in that direction; but, considering it of the utmost importance that some experience in sledge travelling should be gained this autumn, ———

25. A party of two 5-man sledges, under Lieutenant Archer and Sub-Lieutenant Conybeare, were despatched on the 5th, victualled for ten days, to the west end of the Fiord to explore the "Bellows." The weather had been fine, with thermometer standing at +12° for some days. The party returned to the ship on the 11th, carrying two men back, frost-bitten in the toes. This was owing to a continued fall of snow with a high temperature; the men getting their feet wrappers damp, when the thermometer suddenly fell to −26°. (*Vide* Sledge Report on the Bellows Valley.)

See page 94.

26. I left the ship on the morning of the 5th, victualled for 10 days, with a party of seven in two 5-man sledges, drawn by dogs overland, with the intention of striking the west coast of Robeson Channel, to ascertain the possibility of travelling along the shore, and also to determine the most suitable place for crossing over to Thank God Harbour. The country was mountainous in the extreme, and deep with snow, which prevented our reaching the coast, being unable to penetrate with sledges beyond 6 miles from the ship. We were compelled to return on the 7th, both sledges having broken down. (*Vide* Lieut. R. B. Fulford's Report, who accompanied me.)

See page 100.

27. On the 12th Lieutenant Lewis A. Beaumont attempted an overland journey with a cart in the same direction, and with the same object in view. The snow was too deep for wheels, and the country so mountainous, the results likely to be obtained so small,

with the thermometer at $-25°$, that I consider he showed a wise discretion in returning to the ship the following day. (*Vide* Report.) *See page* 102.

28. The 16th being the day we lost the sun for 137 days, the "main brace was spliced," and an extra issue of spirits will be continued daily till the 28th February, 1876.

29. On the 16th and 20th I left the ship in a dog-sledge to ascertain the state of the ice in Robeson Channel, this being the first time the ice would bear round Distant Cape. Still, where the water lanes had frozen over, it was not safe. In places where the heavy floes had met along the coast, as well as in mid-channel, the ice had piled up in hummocks 30 or 40 feet high, showing what tremendous pressure the current south must produce. Finding the travelling too bad for dog-sledge I left it, climbing and walking two miles towards the centre of the channel. Observed high land on the west coast for some considerable distance, and vapour rising, indicating water lanes in mid-channel, proving the impracticability of crossing over to Hall's rest without a boat, and the great difficulty of hauling one over such obstacles.

30. Lieutenants Archer and Fulford erected an ice-house on the floe for the differential declinometer. Hourly observations were commenced on the 23rd. They have also taken the necessary observations for dip, variation, horizontal and total force in the magnetic observatory during the month.

31. The hourly rise and fall of tide, times of high and low water during the Equinox, between the 15th September and the 26th of October (when wire of tide gauge broke, a temporary one was erected to complete lunation), have been most carefully registered in a book of diagrams.

32. Lieutenant Lewis A. Beaumont has been busy during the month fixing and adjusting the transit instrument. The work of levelling was almost an impossibility, until it was discovered, the level supplied was very much out of adjustment.

33. The occultation of stars mentioned in the Scientific Manual would be visible on the 16th and 18th, were, in consequence of the moon being too bright for stars of that magnitude, not observed.

34. Mr. Thomas Mitchell, Assistant Paymaster, who is a Photographer, and very clever with his pencil, has made some remarkably good water-colour sketches on our passage up as well as the coast-line of Smith Sound, including a very good collection of photographs.

35. There has been a great deal of condensation on the lower deck during the month, always worse with a low thermometer. The up-takes erected by means of funnelling, windsails, &c., invariably acted in the opposite way, except when the heat of the lower deck was excessive. The condensation might be reduced by extra firing, but I fear the temperature would then be unhealthy.

36. The hammocks were found to freeze quite hard when stowed under the top-gallant forecastle, the effect of being removed from the warm deck to the cold air, and became quite damp again when the men turned in at night; they were stowed in the main hold in consequence, which remedied this evil.

37. The ship's company have been employed during the month in building an ice smithy, banking the ship up outside, and snowing the upper deck, which we have found is the best remedy for the condensation below.

38. A school three days a week has been established under the able auspices of the chaplain.

39. The weather during October has been fine, but the temperature very variable. We have experienced no wind to speak of. The adjoining hills and opposite coast of Grinnell Land have been observed quite free of snow, which indicates they have been visited by the usual autumn gales. The 25th was our coldest day, $-39°$; and the 7th the warmest, $+21°$. The mean temperature of the month was $-9°$.

40. The number of days on which snow fell was 12, on 3 of which it was heavy. The estimated amount which has fallen up to the end of the month is about 7 inches.

41. The thickness of the ice in the Harbour, 16½ inches.

42. On the 31st stars were visible at noon, thus beginning our long Arctic night.

43. Coal expended during the month, 2 tons, 12 cwt., 2 qrs.; remaining on charge, 114 tons, 17 cwt., 3 qrs.

44. Fresh meat issued during the month was 816 lbs.; remaining on charge, 3,053 lbs.

45. Game killed in October, 12 hares and 1 ptarmigan.

November, 1875.

46. November has been decidedly a dark and gloomy month. We have daily seen a faint glimmer of light over the southern horizon in Kennedy Channel, and over

Grinnell Land, only visible between the hours of 10 a.m. and 1 p.m., not sufficient to read the hands of a watch or to make any use of it. There has been no wind to speak of.

47. Several magnetic disturbances have been observed during the month. Five-minutely observations of the differential declinometer and oftener during 24 hours have been carefully registered whenever the needle indicated it was necessary. The magnetic officers have taken the usual weekly and monthly observations for dip, variation, horizontal and total force. In fixing the magnet in the Fox Circle on the 4th, the jewel in the bracket was accidentally split, which it is feared will render the instrument useless.

48. The tidal observations have been carefully registered throughout the month. A new tide gauge was erected on the 3rd, which consisted of 78 feet of $\frac{1}{4}$ and $\frac{3}{8}$ inch iron rod, hooked together, weighted at the bottom by three furnace bars weighing 53 lbs., scale fixed on the stern; T end of guage suspended over roller on taffrail, and weighted by two 32 pounder shot. The luni-tidal intervals seem to follow very much the same course as last month, showing rather a larger diurnal inequality, owingprobably to the increase in the sun's declination south. The zero of present gauge on erection was referred to the old one, using the theodolite on shore, and a correction of 3 feet added to the readings of the old wire gauge was deduced.

49. The Pendulum House has been banked up and covered with snow; during the coldest weather experienced, $-45°$, the temperature of the room was $-9°$. Most of the adjustments of the transit instrument have been completed, but owing to the clock not being available, the instrument is not yet accurately in the meridian.

50. Sub-Lieutenant Crawford Conybeare has had no opportunity of observing with the spectroscope. Slight auroras have been visible on several occasions, but without any defined lines or brilliancy. Two peculiar lunar phenomena were seen on the 13th and 20th, and several bright meteors during the month, all of which have been noted with diagrams and measurements by that officer. Occultations on the 12th, 15th, and 20th, were not observed, owing to the clouded state of the atmosphere. *Not printed.*

51. Astronomical observations for time, latitude, and longitude, have been obtained whenever opportunity offered.

52. The ship's company have been employed banking the ship outside, snowing and cementing the upper deck, and building a theatre on the floe, which has kept them fully employed.

53. The amusements during the month have been various. The 5th was celebrated by the burning of Guy Fawkes. Mr. Mitchell attempted to photograph our proceedings on the ice by aid of long lights, but without success. Laying the foundation stone of the Royal Alexandra Theatre was performed on the 13th, with due solemnity. Two entertainments of the magic lantern, in which instructive and amusing lectures were given. A fortnightly paper was published under the auspices of the naturalist.

54. The temperature has been very variable throughout the month, at times almost warm enough to dispense with fires; the warmest day was the 9th, $+19°$, the coldest day the 23rd $-46°$. On the 9th the temperature ranged from $+19°$ to $-27°$. The mean temperature for the month was $-17°$.

55. The condensation on the lower deck has been better on the whole; snowing the upper deck has been a decided improvement.

56. The number of days on which snow fell during November was nine, all light.

57. The thickness of the ice in the harbour, 20·6 inches.

58. Coal expended during the month—2 tons 17 cwt. 3 qrs.

59. Fresh meat issued 800 lbs., remaining on charge 2,281 lbs.

December, 1875.

60. December has been very dark, hazy, and thick. The moon rose on the 6th, and set on the 20th, appearing like a great grease spot for nearly the whole of that lunation. On two days only were lunar distances obtained. The hazy state of the weather and the intense cold during the latter part of the month preventing other observations. On the 4th we experienced a gale from the S.W. (true) lasting from 1 a.m. to 6 a.m. Temperature $+26°$, and on the 7th it was very squally from the eastward, temperature $-5°$, accompanied on both occasions by a deal of snow-drift. These are the strongest breezes we have as yet experienced, but they were by no means cold.

61. The magnetic officers have taken the necessary observations for dip, variation, horizontal, and total force. The declinometer has been registered hourly throughout the month, and oftener whenever the needle indicated a disturbance. It has been found that rime forms so quickly on the axles from the breath, or touch of the fingers, that the

needles are prevented from working freely, and have to be constantly cleaned, in doing which on the 28th, the axle of Lloyd's was accidentally broken off.

62. Times of high and low water, as well as hourly rise and fall, have been uninterruptedly registered throughout the month. The present method of fixing the zero by theodolite being attended with so much difficulty in the dark, the following easy and simple plan has been adopted, viz., measuring by lead line from the bottom to T end of gauge; then laying off that length on the ice between two pegs, thus preventing the stretching or shrinking of the line having any effect, and so enabling us to test the accuracy of the zero whenever necessary.

63. Lieutenant Beaumont took advantage of the mild weather in the early part of the month to start the clock in the pendulum house, hoping to rate it, and fix the transit instrument in the meridian; but the temperature falling to $-54°$ the clock stopped, which has for the present prevented any further observations being made in that department. The temperature of the room during the month has ranged between $-6°$ and $-21°$.

64. Mr. C. H. Hart, Naturalist, informs me of his labours under their separate heads up to the present time :—

Geology. Considerable collections of fossils have been obtained in Dobbin Bay and Hayes Sound, some of new form and of much interest in coming from lands not previously visited. They are of Silurian age. Marine shells and raised beaches on the western shores, as well as the Greenland coast, prove the rising gradually of the land on either side up to winter quarters. No recent geological formations have been met with except boulder drift and glacial clay.

Zoology (*Terrestrial*). With the exception of fine specimens of the Musk Ox, opportunities have not been favourable for this branch of science, but I trust the coming season will make up for past deficiencies.

Zoology (*Marine*). The towing net and dredge have been well repaid; large collections of lower animal life have been obtained both from the surface and the bottom —most of these are undoubtedly new to science, and will probably be the most important in his department.

Botany. A very large collection of lichens has been gathered on the way up; 135 species of flowering plants have been collected from Disco northward and several plants found inside the arctic circle not hitherto known. This is very satisfactory, considering the limited time he has had, and the fact of our being too early for the short season in some places and too late at others.

65. The Royal Alexandra Theatre was opened on the 1st of December with a performance by the officers. This has been a great success in affording amusement to all, under the able management of the First Lieutenant. Entertainments of a humorous and intellectual description have been carried on weekly. Talent so versatile, I feel sure, cannot be surpassed north of the arctic circle.

66. Christmas Day was spent most cheerfully and orderly; our fare consisting of $1\frac{1}{2}$ lbs. of English mutton per man, killed last August, a pint of beer to each, with a liberal supply of plum pudding and mince pies, the gift of some good friends in England.

67. We find the winter cloth boots are getting very much the worse for wear, so much so that many men are confined to the ship in consequence, and the shoemakers are continually kept employed.

68. The temperature during the month has ranged between $+26°$ and $-54°$. From the 7th to the 13th the fore hatch was kept raised by day and night in consequence of the heat below. The warmest day was the 4th, $+26°$, and the coldest the 23rd, $-54°$. The mercury was frozen between the 19th and 28th inclusive. Mean temperature for the month is $-25°$.

69. The number of days on which snow fell was nine, all light. We have no means of indicating the amount fallen, but estimate it up to the end of the year at 10 inches. We often observe snow in the atmosphere when it is quite clear and starlight overhead, which must be attributed to drift blown off the adjoining hills.

70. The thickness of ice in the harbour is 24.7 inches. The temperature of the bottom, in 24 fathoms, was 29°. In consequence of it not having been found to vary much it has only been taken at intervals.—*Vide* Meteorological Journal by Dr. Belgrave Ninnis. *Not printed.*

71. Coal expended during the month was 2 tons 18 cwt. 3 qrs. Remaining on charge 108 tons 17 cwt.

72. Fresh meat issued during the month was 182 lbs., all mutton. Amount remaining on charge 2,021 lbs. Musk Ox has not been served out, owing to every-

body being rather tired of the musky flavour, but it will be resumed again in January. I see in the account of the "Polaris" they did not experience this flavour, but ours has been very strong throughout.

January, 1876.

73. Time is on the wing; the old year gone, and the new one commenced. The month of January has been remarkably fine and clear, intensely cold, but no wind, each day bringing an increased arch of twilight, sure proofs our Arctic night is on the wane, which has raised the spirits of all. At noon of the 28th we were able to read on the floe a few lines from the leading article of the "Times."

74. On the 3rd, Dr. Ninnis reported James Shepherd, Cooper, on the list with scurvy. A medical inspection, however, dispelled our fears, for in using the surgeon's own remark upon the result, "There was not a foul tongue in the ship." With the exception of Shepherd, who is constitutionally predisposed to scurvy, there could not be a healthier body of men. It is needless for me to remark, with the frequent inspections, so much fresh meat, lime-juice, and variety of good food that has been issued, we hardly contemplated such a visitation during our first winter in these regions.

75. The magnetic officers have taken the necessary observations for dip, variation, and horizontal force during the month; owing to the accident to Lloyd's needle, and the Fox Circle being out of repair, observations for total force have not been taken.

76. Lieutenant Beaumont hopes to begin pendulum observations as soon as this intensely cold weather passes off, so as to enable him to rate the clock, everything being now ready in that department.

77. The tide gauge has worked remarkably well, times of high and low water, rise and fall, have been registered throughout the month.

78. The lunation lasted from the 4th to the 16th; it being clear enabled us to obtain some lunar distances. Occultations on the 7th and 12th were observed with satisfactory results. Good positions were taken up by Lieutenants Beaumont and Archer some distance from the ship, in opposite directions, for the purpose of observing the occultation of Mars on the 31st (using the transit instrument and long telescope); the atmosphere was clear overhead, but the moon's altitude was very low, and the increasing daylight causing a thick mist to rise, obscured both luminaries, making their efforts unavailing. Astronomical observations, *even* attempted during the severity of an Arctic winter, in which difficulties of no ordinary nature have to be overcome, call forth an amount of zeal, perseverance, and ingenuity, that in my opinion is highly creditable.

Not printed. 79. This month has been fruitful in Auroras and lunar phenomena, *vide* Sub-Lieutenant Conybeare's remarks with diagrams. The magnetic officers have not been able to connect any Auroras seen with magnetic disturbances registered.

80. On the 20th Hans (Esquimaux) was reported absent from "evening quarters," as well as when the "rounds" went at 9 p.m. His messmates reporting his manner had been peculiar for some days, we instituted a search in the neighbourhood of the ship. On striking his tracks in the snow some two miles west, I despatched Lieutenant Fulford with six volunteers and some lanterns to follow them up. This party left the ship at 10.30 p.m., the thermometer $-49°$, weather rather thick. They returned at 6 a.m. with the absentee, having found him asleep on Bellot Island in a snow-hole made by himself. He appeared desponding, and his English not being fluent, he is therefore difficult to understand. I am disposed to think the long confinement, good and regular feeding, with so few he can converse with, is the cause of his morbid imaginations, and that when daylight returns, and he is able to shoot, things will appear in a different light.

81. The ship's company has been employed outside the ship five hours a day throughout the winter making roads, as well as having to fetch our daily consumption of water from a berg situated half-a-mile off, till the thermometer registered $-54°$, the cold was then too severe for anything but brisk walking exercise.

82. The temperature during the month has ranged between $-13°$ and $-63°$. The warmest day was the 10th, $-13°$, and the coldest days were the 23rd and 24th, $-63°$. Mercury remaining frozen so long, we have much felt the want of a self-registering maximum spirit thermometer, as well as a good standard thermometer. The mean temperature during the month was $-40°$.

83. The number of days on which snow fell was 11, average depth about 2 inches.

84. Thickness of ice in the harbour 28·7 ins. Temperature at 20 fathoms, $28\frac{1}{2}$.

85. Coal expended during the month, 3 tons 0 cwt. 2 qrs. A slight increase owing to the cold. Remaining on charge 105 tons 16 cwt. and 1 qr.

86. Fresh meat issued during the month, 581 lbs. Remaining on charge, 1,493 lbs.

February, 1876.

87. The month of February has been rather gloomy, owing to the increasing daylight, and no sun. The moon rose on the 29th of January, and set on the 13th of February. On the 9th it was full moon, but the increasing dawn was so strong at midday, it reflected shadows, which the moon had hitherto been accustomed to do.

88. A few lunar distances were obtained, but no occultation, owing to the weather.

89. On the 4th, during the middle watch, a gale sprung up from the N.E., with a falling barometer; the wind veering about all round the compass, in very heavy squalls. The atmosphere was so laden with snow-drift, that the observations of the declinometer were discontinued for a time, being unable to get outside the ship during the most of the day. It lasted with more or less violence till the night of the 5th, when it blew itself out in fitful gusts, leaving the atmosphere very thick, overcast, and the hills quite barren of snow. This was a regular arctic gale, the drift penetrating every hole and crevice, that made one feel thankful to have a warm and comfortable ship to take shelter in. The temperature varying between $-12°$ and $+2°$. Even the dogs looked miserable. These are the only two days during the winter we have been prevented by the weather, from morning inspection and prayers outside the ship.

90. The magnetic officers have taken the necessary observations during the month. The Fox Circle having been most efficiently repaired by William Ward, Armourer, they have obtained a fresh set of base observations, as well as observations for total force.

91. The weather has been too cold for any work in the pendulum house during the month.

92. Tidal observations have been carefully observed and registered. The ice freezing so thick from the bottom in the gauge hole, we were compelled to cut out a large block which was found to measure 5 feet 3 inches in thickness.

93. On the 16th, stars were visible at noon, for the last time, making 109 days we have had them shining at mid-day.

94. On the 24th I went to Distant Cape in a dog-sledge, accompanied by Lieutenant Beaumont. Hall's Basin was apparently filled with ice, and very hummocky. Observed a narrow lane of water off Newman Bay on the opposite shore.

95. On the 26th the ship's company mustered in duffle travelling suits, and marched up Cairn Hill, 1,550 feet above the level of the sea, on the chance of seeing the sun down Kennedy Channel. The weather being thick, with a breeze from the southward, prevented our seeing any distance. We enlarged the cairn to about 10 feet high, and returned on board at 1 p.m., the party thoroughly enjoying the lark, but became very straggling; nevertheless all succeeded in reaching the top as well as the bottom without accident.

96. On the 27th George Leggett, Ship's Cook, went out of the ship for half-an-hour during evening service, wearing his half boots, and was frost-bitten in both big toes in consequence. The temperature was $-30°$. It is difficult to make the men understand that though the sun is about to return it is not warm enough to go outside in their shirt sleeves just at present.

97. On the 29th we could distinguish the sun's disc through a low mist, reminding us of what is so often seen during a London fog. This makes it 135 days absent, and so ends our first winter in these regions.

98. I must pass a remark upon a service of such novelty, interest, and at the same time so monotonous when employment of the mind is so essential. Each officer being fully occupied with his own branch of science, and in some cases more work than it was possible to manage, has made the darkness pass pleasantly enough. The unvarying routine that has been carried out with a variety of amusements for the ship's company has made it perhaps monotonous at times to them, but on the whole the days and months have slipped quickly away, leaving nothing to mark them.

99. Their conduct has been all that could be desired, and their health and spirits (with the exception of paragraph No. 74) has been excellent, but at present all look pale and blanched.

100. The temperature during the month has ranged between $+2°$ and $-58°$. The coldest day was the 29th, and the warmest day was the 4th. The mean temperature of the month was $-35°$.

101. The number of days on which snow fell was eleven—average depth about two inches.

102. The thickness of ice in the harbour is 31 inches.

103. Coal expended during the month, 2 tons 19 cwt.; remaining on charge, 102 tons 17 cwt.

104. Hans having recovered his usual cheerfulness has been away shooting daily: he has killed 13 hares during the month.

105. Fresh meat issued, 520 lbs; remaining on charge, 1,083 lbs.

March, 1876.

106. March was ushered in with a bright sun, but severe cold. Between the 1st and the 14th the mean temperature was −49°, and just before midnight of the 3rd the minimum showed −70°·5—I believe the coldest ever recorded. We have in consequence been unable to lay out depôts for our sledging parties, and to which I attribute the absence of the much-wished-for news of your safety and welfare.

107. The month, however, has not been passed in idleness. Working parties have been employed erecting cairns on the most conspicuous hills. Printed records of the expedition have been left, one of which I enclose. On the 17th the first lieutenant erected one on the summit of Bellot Island, 2,200 feet above the level of the sea, consisting of three oil drums and a cask, in the centre of which is a 10-foot staff, surmounted by a beacon, the total height being 20 feet, which stands out most conspicuously from the surrounding country.

Not printed.

108. The officers have taken daily long walks in search of game, adding much to our topographical knowledge of this neighbourhood. In some instances 26 miles has been accomplished, with the temperature −52°, showing energy and enthusiasm for the coming work not to be despised.

109. The magnetic officers have taken the usual monthly observations. Hourly readings of the differential declinometer have been carefully registered since the 22nd of October, 1875, only interrupted for a few hours during the gale on the 4th February.

110. Lieutenant Beaumont had everything ready for observations with the pendulum at the beginning of this month, being in hopes a milder temperature would have allowed the clock to go, but the very severe weather frustrated his expectations. This being the last month the clock can be rated by the transit of stars, having now perpetual daylight, he was prepared to make a great effort. It now remains to be proved whether the observations can be carried out with sufficient accuracy by means of the sun alone. If this is not successful, the only other opportunity would be in the autumn, during the few days between the re-appearance of the stars and the advent of a temperature that would stop the clock, stars of the first magnitude being visible at night during the first week in October. The absence of Lieutenant Rawson in H.M. Ship "Alert," who took the base observations at Kew before leaving England, has been a great loss to this department (*vide* Lieutenant Beaumont's full and detailed account of all that has been attempted in this branch of science during the winter).

Not printed.

111. Hourly rise and fall, as well as fifteen-minutely observations for times of high and low water, extending over a period of six months during one solstice and one equinox—as recommended in the scientific manual—concludes the tidal observations for Discovery Harbour (*vide* book of diagrams, with remarks by Lieutenant Archer), the merits of which must stand the test of Professor Haughton's investigations.

Not printed.

112. During the winter, 50 sets of lunar distances were observed, 16 of which up to this time have been calculated, the mean giving the longitude as 65° 3′ 14″ W. This accords with the longitude deduced from the chronometers to within 30 seconds of time. Lieutenant Beaumont ascertained the rates of the chronometers from time to time by means of the transit instrument, and though they are in my cabin, a variation in their rates has been observed, following the changes of temperature during the winter. From the frequent severe concussions the ship sustained in working through the ice last year to her present position, I am surprised to find the errors deduced from the lunars should so nearly agree with those of the accumulated rates. Occultations of stars as they occurred were taken whenever the weather permitted. The times of ingress and egress of the sun's eclipse were observed on the 25th, the day being very fine and everything favourable.

113. The dogs are in a very thriving condition; of the 24 we embarked at Rittenbank on the 16th July, 1875, nine died between that date and the 6th of September from the disease endemic in parts of Greenland of the nature of which little or nothing is known. Their long confinement on board the ship no doubt developed their malady as they much improved when landed at our winter quarters. Dr. Belgrave Ninnis has written a very able and detailed account of their symptoms and the method of treating it, which in several cases he has done with complete success, also the particulars of several post-mortem examinations made by himself and Dr. Coppinger, as well as other remarks on their habits and peculiarities. These dogs have spent the

whole winter on the ice in the neighbourhood of the ship, without the slightest shelter of any description. The snow houses we built for their accommodation they sometimes coiled themselves on top of, never inside, and more generally used to stale against. There have been three litters of pups, but in all cases they have come to an untimely end through the severity of the climate.

114. On the 25th your dog-sledge arrived with Lieutenant Rawson and Sub-Lieutenant Egerton, both remarkably well considering their cold journey. The good news of you and your whereabouts was most cheering after a lapse of seven winter months. I always felt, should any untoward circumstances have happened, there was the "Discovery" safe and snug for your reception. However, Providence has watched over us both, and I hope, as soon as my sledging parties have started, to run up and shake you by the hand.

115. In reply to your memo. of the 8th instant, respecting St. Patrick Bay, 10 miles north of Discovery Harbour, as suitable winter quarters for both ships next year, I will carefully reconnoitre the neighbourhood with that object in view. At present I am under the impression it is a deep fiord with precipitous cliffs on either side, which prevents the ice being cleared out annually, as the ice appeared to be of great age when I visited it on the 17th. *See page 12.*

116. With reference to the explorations to be undertaken by me this summer, and in accordance with your instructions, Lieutenants Beaumont, Wyatt Rawson, and Dr. Coppinger will explore the north coast of Greenland, making the depôt at Thank God Harbour their base of operations, for which purpose I have despatched Lieutenant Archer with Dr. Coppinger to Polaris Bay in the dog-sledge to obtain a complete inventory of all there is there. On their return, provided their report is satisfactory, Lieutenant Beaumont, with Dr. Coppinger, will proceed direct to the "Alert," and from your advanced position make the best of their way across the straits along the north coast of Greenland. A boat shall be sent over to Hall's Rest, there to be depôted for the party on their return, with provisions or not, as necessary. I feel the service on which they are employed would not only be expedited but the results more satisfactory if you would undertake to plan their future operations.

117. Lady Franklin Sound will be undertaken by Lieutenants Archer and Fulford and Sub-Lieutenant Conybeare. The impossibility of any autumn sledging prevented our obtaining the information I much wanted in that direction. As far as the eye can range from various positions and the tops of the highest land in this neighbourhood, makes it quite a second Hayes' Sound, consisting of numerous deep fiords, with distant land at every opening.

118. At present I have not sufficient force to undertake Petermann Fiord.

119. Good and snug as our winter quarters undoubtedly are, we are badly situated for sledging. The strong current coming down Robeson Channel from the northward and sweeping up Lady Franklin Sound kept open water along the shores until the winter was far advanced, the precipitous cliffs and capes allowing no ice-foot to form, piling up huge blocks as barriers, making them impassable.

120. Our ice-foot round the harbour is from 15 to 20 feet thick, broken away and rugged in extreme, caused by the spring and neap tides, which alter it materially; the highest rise has been 7 feet, and the lowest neap 4 inches.

121. From our well sheltered position I am unable to give any opinion of the prevailing winds during the winter.

122. The temperature during the month has ranged between $-8°$ and $-71°$. The coldest day was the 3rd, and the warmest day was the 16th. The mean temperature of the month has been $-41°{\cdot}6$.

123. The number of days on which snow fell was 9.

124. The thickness of ice in the harbour is $35\frac{1}{2}$ inches, temperature of bottom in 25 fathoms, $29°{\cdot}8$.

125. Coal expended during the month, 3 tons, 1 cwt. 1 qr.; remaining on charge, 99 tons, 15 cwt. 2 qrs.

126. Fresh meat issued during the month, $792\frac{1}{2}$lbs., leaving none on charge,

127. Three hares have been killed during this month, Hans with the dog-sledge having been otherwise employed.

128. I have the honour to enclose a survey of Discovery Harbour and a coast-line of 20 miles, which is the utmost we have been able to complete up to the present.

I have the honour to be, Sir,
Your obedient Servant,
H. F. STEPHENSON,
Captain.

To Captain G. S. Nares,
H.M.S. "Alert."

LETTER OF PROCEEDINGS, No. 2, BETWEEN 30TH MARCH AND 6TH APRIL, 1876.

H.M.S. "Discovery," at Discovery Harbour.
(Lat. 81° 44′ North. Long. 65° 3′ West).
6th April, 1876.

Sir,

In continuation of my letter of proceedings to you, despatched by Lieutenant Rawson and Sub-Lieutenant Egerton, on the 30th ultimo,—

Not printed.

2. I have to inform you of the return of Lieutenant Archer and Dr. Coppinger from "Thank God Harbour," having taken an inventory of provisions left there by the "Polaris." The accompanying record of Captain Buddington was found in the observatory.

3. The samples were all good, and of those they brought over, preserved meat, pemmican, ham, tea, &c., are all excellent.

4. The printed list, with the exception of spirits, appeared to coincide nearly with what has been found, which is very satisfactory for the party exploring the north of Greenland.

5. As the seasons vary so much in these latitudes, it is impossible to know how long we are safe from the breaking up of the ice in Robeson Channel. I *had* decided upon sending a 15-foot ice-boat over at once, but in consequence of these officers reporting the ice so bad for travelling that it would certainly take a week to get a boat over, I have considered it more desirable to start all the exploring parties at once, trusting to an opportunity of transport on the return of some of my limited sledges from the main line.

6. Lieutenant Archer informs me that there was a quantity of small articles lying about—crowbars, insulated wire, frames of dredges, ice saw, and flat iron, &c., &c.

7. Captain Hall's grave was in a thorough state of preservation, a quarter of a mile S.S.E. true of the observatory. The willow mentioned by Captain Tyson as having been planted was alive and doing well. A ship's cabin door or bulk head, half buried, as a head-stone, painted white, the letters being sunk and painted black, with the following inscription :—

In memory of
CHARLES FRANCIS HALL,
late Commander U.S. steamer "Polaris," North Pole Expedition.
Died November 8th, 1871.—Aged 50 years.
"I am the resurrection and the life : he that believeth in Me though he were dead, yet shall he live."

8. From the Sastrugi, strong northerly winds were most prevalent.

9. No recent marks of animals were seen, except some old bear tracks under Cape Lupton.

10. Lieutenant Beaumont, accompanied by Dr. Coppinger, each with an eight-man sledge victualled for 14 days, leave to-day for the "Alert," and I have referred them to you for their further instructions.

11. Lieutenant Archer, with a twelve-man sledge victualled for 50 days, will leave on the 8th instant, to determine the continuity of Grant Land, down Lady Franklin Sound, accompanied by Sub-Lieutenant Conybeare with an eight-man sledge victualled for 42 days. These two officers will travel together for seven days. Mr. Conybeare will then complete Lieutenant Archer's sledge to 53 days, and depôt 7 days more for Lieutenant Archer's return, thus giving that officer provisions till the 15th June.

12. Sub-Lieutenant Conybeare returning on board by the 22nd of April, should the opportunity then be favourable, Lieutenant Fulford will cross to Hall's Rest with a 15-foot ice-boat.

13. The alterations that have been undertaken in all the travelling equipment since the arrival of your sledge on the 25th ultimo, have been most successfully completed. The despatch of our sledge parties is due to the untiring energy of all concerned, who have worked early and late with the greatest enthusiasm.

14. The strength of our sledging crews will include 49 persons, absent from the ship, when my own party leaves on the 11th for the "Alert."

15. The temperature still remains low, −30 to −40°, but I trust, with the precautions we have taken, that all will go well.

I have the honour to be,
Sir,
Your obedient Servant,
H. F. STEPHENSON,
Captain.

To
Captain G. S. Nares,
H.M.S. "Alert."

LETTER OF PROCEEDINGS, No. 3, BETWEEN 6TH APRIL, 1876, AND 22ND MAY, 1876.

H.M.S. "Discovery," at Discovery Harbour,
(Lat. 81° 44′ North. Long. 65° 3′ West.)
22nd May, 1876.

April.

Sir,

At noon on the 8th, Lieutenant Archer and Sub-Lieutenant Conybeare with 12 and 8-man sledges left for Lady Franklin Sound, as per par. 11 of my letter No. 2, 1876. *See page* 54.

2. I accompanied this party with dog-sledge victualled for 7 days, taking Lieutenant Archer on in advance, leaving Mr. Miller, Engineer, in charge of the 12-man sledge.

3. We crossed the western entrance and proceeded along the ice-foot down Lady Franklin Sound, encamping that night eight miles from the ship; the travelling was very bad, the snow being soft, 3 feet deep, and ice hummocky. I felt the heavy sledges would make but little progress, so retraced my steps the following day, intending to take the party along the ice-foot under Sun Land up Discovery Harbour. I found them at 2 p.m. at luncheon, having just crossed the western entrance; they had been compelled to double-man one sledge at a time, the runners having sunk nine inches in the soft snow. Giving them a lead round Sun Cape, and finding the ice-foot inside the Harbour a little better, I named Cape Straight as the rendezvous, telling Mr. Conybeare to cross the land at the head of the harbour into Sun Bay, looking out for my flag with a note on Stony Cape for further instructions, and pushed on with Lieutenant Archer.

4. At 1 p.m. of the 10th we reached Stony Cape, and leaving the sledge walked on till we determined there was no outlet to the westward, and that Cape Straight was an island; taking a round of compass bearings, and leaving a note for Mr. Conybeare to follow in our tracks, we started across Conybeare Bay for Cape Straight, and pitched our tent under the lee of some hummocks at 6 p.m. The travelling was most laborious; with 12 dogs and our 5 selves we were four hours getting over 2 miles.

5. With so much deep snow I had little hopes of seeing the heavy sledges before my provisions would compel my return to the ship. They, however, arrived in the evening of the 12th, all remarkably well and cheery, but quite convinced their acquaintance with sledging was very different from what previous expeditions had experienced and written about. They had looked forward to 6 or 8 miles a day, but even that was beyond their hopes.

6. On the 13th we started along the ice-foot of Miller Island, till nearly abreast of Keppel Head, when we struck across the south side of Conybeare Bay. The travelling was still so heavy that we had to double-man one sledge at a time. The twelve-man sledge capsized, which necessitated its being unpacked before being righted; we then observed one of the iron runners was broken, and the other with a bad flaw in it, we reversed the sledge end for end, and at 5.30 p.m. pitched the tents one mile east of Keppel Head, the men very much done, having only accomplished four miles for the day.

7. Taking into consideration the nature of the travelling, the disabled state of the twelve-man sledge, with its extremely heavy load, and that the eight-man sledge is handier and more suitable for Lieutenant Archer's extended journey, I decided that the two sledges should travel together till the 23rd inst., when Lieutenant Archer should complete the eight-man sledge for 42 days, leaving a depôt of 15 days for his return journey, and send Mr. Conybeare back with the twelve-man sledge and 15 day's provisions, to be on board by the 7th May. Lieutenant Archer returning on board by the 10th June, the original date, giving him 8 days' provisions to veer and haul upon for contingencies.

8. On the 14th, I went on with them till luncheon time, when bidding them farewell, accompanied by Mr. Miller, I retraced my steps over their tracks to the ship, arriving on board at 4.30 p.m. of the 15th, just taking me a day and-a-half to walk the distance the heavy sledges had occupied six whole days to accomplish. Such is the nature of the travelling we have to contend with in this neighbourhood, and with a temperature varying from −34° to −40°, entails an amount of suffering and privation that

can be only known and appreciated by those who have experienced sledging in these regions.

9. On the 18th I left the ship in a dog-sledge, accompanied by Mr. Mitchell, Assistant Paymaster, for H.M.S. "Alert," at Floe Berg Beach, Lincoln Sea, arriving there on the 23rd, having been detained one day in the tent by a gale.

10. Remaining with you during that week, and after discussing every subject, and receiving your final instructions, ——

11. I left on the night of the 30th for H.M.S. "Discovery." On passing Black Cape, G. Emmerson, chief boatswain's mate of H.M.S. "Discovery," was encamped with the sledge "Alert," having just crossed the channel from Greenland with news of Lieutenant Beaumont's party up to the 28th—all well. Arrived on board the "Discovery" on the evening of the 4th inst., having been detained again on my journey down by a gale from the northward.

12. Sub-Lieutenant Conybeare returned from Lieutenant Archer's party on the 20th inst., in consequence of the twelve-man sledge being completely broken down.

13. The temperature during the month of April has varied between—42° and + 13°. The coldest day was the 3rd, and the warmest day the 29th.

14. Coal expended during the month, 2 tons 10 cwts.

15. The thickness of ice in the harbour was 39·25 inches. Temperature of bottom in 20 fathoms, 29.8°.

16. Only one ptarmigan has been seen, which was killed on the 10th inst., and five hares.

May.

17. On the 2nd instant Lieut. Archer's party returned from Lady Franklin Sound having explored to the end and found no outlet.

18. This Sound extends to the S.W. for 65 miles from the "Discovery." At Keppel Head it is four miles broad, gradually narrows towards the end, and terminates in two small bays, with high surrounding cliffs. Mount Neville, 3,800 feet above the level of the sea, in Lat. 81° 10′ N., and Long. 70° 45′ W., was ascended by Lieut. Archer, and no appearance of anything but continuous high land, so that it may be inferred he has seen almost as great a distance as that already travelled over; and Grant Land is a continuation of Grinnell Land, forming one vast continent. The United Sates range bore from N.N.W. to W.N.W. (true), where it appeared to terminate; the distance from the range was estimated at about 20 miles. One glacier was seen from the top of Mount Neville N. 30° W. (true), as well as three others during the journey. Two on the south side of the Sound and one at the head of the southern arm of the bay, none of which reached the shores. A herd of 11 Musk oxen were observed 16 miles from the head of the bay on the southern shore, but none obtained.—*Vide* Lieut. Archer's report.

See page 323.

19. I enclose a rough survey of Archer Fiord, time being too limited for the minor details of a fair copy.

See page 452.

20. Sub-Lieut. Conybeare was despatched on the evening of the 2nd with 15-foot ice boat for Polaris Bay. This party I recalled, but not the boat, deciding in consequence of the return of the western sledges to transport the 15 *and* 20-foot ice boats over to Hall's Rest; so that in the event of a fissure occurring in Hall's Basin during the absence of so large a party, they would have the benefit of a ferry boat for returning.

21. These men arrived on board on the morning of the 6th instant, and left again on the evening of the 7th instant with the 20-foot ice boat and additional 11 men, under the command of Lieut. Fulford and Mr. Conybeare.

22. On the evening of the 10th instant I started for Polaris Bay with dog sledge, accompanied by Mr. Hart (Naturalist), arriving there at 2 a.m., of the 12th, where I found Lieut. Fulford with the boats, just going to pitch his tents.

23. The weather was thick with a strong breeze from the southward, which made the journey unpleasant, but the ice was the best I have yet travelled over. Some very large floes of young smooth ice in Hall's Basin; hummocks and heavy nips on both sides of the channel near the shores, the heaviest being on the Polaris side, with some large grounded bergs.

24. Our party now consisted of 24 officers and men with 8 dogs; we crossed over as light as possible, with only sufficient rations of those things I knew the Polaris depôt to be in want of, and completed the victualling from *that* depôt to the 21st instant, entering a list of things taken, and securing the remainder, according to your Memo. of the 30th April, 1876.

See page 74.

25. On the 13th we hoisted the American flag over Capt. Hall's grave, and at the foot erected the brass tablet brought from England, with the following inscription :—

Sacred to the Memory of
CAPTAIN C. F. HALL,
of the U.S. Ship "Polaris,"
who sacrificed his Life in the Advancement of Science
on Nov. 8th, 1871.
This Tablet has been erected by the British Polar Expedition of 1875,
who, following in his footsteps, have profited by his experience.

26. At 8 p.m. on the 15th, Dr. Coppinger and George Emmerson, chief boatswain's mate, with 8 men and 2 sledges, arrived from Repulse Harbour, having left that place on the 8th instant. They visited Captain Hall's cairn on the north side of Newman Bay, bringing away the record (a copy of which I enclose). They then proceeded to his tent and boat on the southern shore of the same bay, taking an inventory of all things found, bringing away the articles on the annexed list, which are now on board the "Discovery." *See page* 61.

27. The whaleboat is 26 feet long, 5 feet beam, and 3½ feet deep, double-planked, one plank stove on bluff of starboard bow, about 7 inches, easily repairable, and otherwise in a serviceable condition.

28. Dr. Coppinger left Lieutenants Beaumont and Rawson at Cape Stanton on the 3rd instant all well, but the travelling was very bad, having only been able to accomplish 20 miles in 7 days. There are some steep, precipitous cliffs about 16 miles north of Repulse Harbour. Should the ice-foot ease off before their return, they will be compelled to abandon their sledge and retreat overland.

29. At Repulse Harbour Dr. Coppinger left a depôt of 8 days' provisions, and at his suggestion I despatched Lieutenant Fulford with him and a depôt of 4 more days to be placed on the south shore of Newman Bay, to enable Lieutenant Beaumont to cross the intervening neck of land between that bay and Hall's Rest, a distance of 10 miles, which is now heavy travelling of deep, soft snow. The two ice-boats and a complete depôt of 7 days for 17 men, already packed at the Polaris Observatory, will, I trust, ensure his and Lieutenant Fulford's party a safe return to the "Discovery" next month.

30. From our arrival on the 12th to the 15th we experienced a heavy blow from the northward. On the 16th the barometer fell from 30·30 to 29·76, accompanied by a whole gale from the same direction, with a deal of snowdrift, confining us all to our tents. The drift was so thick that, notwithstanding the 5 tents were pitched close together, it was at times impossible to communicate. We had luckily sheltered ourselves a little by building snow walls, one of which was blown down, and the remainder looked as if they had stood a siege from the dilapidated state they were left in.

31. On the morning of the 17th it cleared, and not knowing what effect the late gale might have had on the ice in Robeson Channel, I felt most anxious to get my party across to Discovery Harbour, leaving Lieutenant Fulford, Dr. Coppinger, and two men with eight dogs to lay our depôt, as per par. 29, and then to explore Petermann Fiord; with orders to return to Polaris Bay by the 15th of June, where they would meet Lieutenants Beaumont and Rawson.

32. I started at 8 a.m. for the "Discovery" with the party—which now numbered 30 officers and men—on the same tracks the boats had come over by, which facilitated our march considerably, arriving on board the ship at 6 p.m. of the 18th, having completed the journey in 17 marching hours, which for distance and time, I think, will excel all travelling that has been recorded by the Expedition this season; at the same time, it must not be lost sight of, as per par. 23, that we were specially favoured.

33. Mr. Hart (naturalist) walked about the neighbourhood of Polaris Bay during the 5 days we were there, as much as the boisterous state of the weather would allow. He reports :—

"The rock *in situ* is of hard limestone, sometimes shaly, and containing few fossils. The whole surface of the country is covered with a highly fossiliferous drifted limestone, moraines, huge boulders, and many evidences of recent glacial action, fluted rocks, &c.

"Evidences of inner plain from shore to 500 feet having risen out of sea, containing marine shells, still existing.

"Traces of fox, lemming, hare, ptarmigan, and snow bunting.

"Eight flowering plants, mosses, and several lichens remain of last season. He has several specimens of fossils, &c., but as yet has had no time for sorting."

34. I observed the ice-foot from Cape Lupton to Polaris Bay was much heavier and

more firmly attached to the shore than that upon this coast. Cracks and openings did not appear to occur there, as they do on this side at every tide; and the ice altogether was of a much heavier description.

I have the honor to be,
Sir,
Your obedient Servant,
H. F. STEPHENSON, *Captain.*

To Captain G. S. Nares, F.R.S.,
H.M.S. "Alert."

LETTER OF PROCEEDINGS No. 4, FROM 22ND MAY, 1876, TO 12TH AUGUST, 1876.

H.M.S. "Discovery," at Discovery Harbour,
(Lat. 81° 44′ North. Long. 65° 3′ West.)
August, 1876.

Sir,

May.

In continuation of my General Letter of Proceedings despatched to you by Sub-Lieutenant Conybeare on the 22nd of May,———

2. I left the ship on the 24th inst., accompanied by Lieutenant Archer, 2 men, 6 dogs, and 10 days' provisions, for Lincoln Bay, intending to put in our share of the coast-line, and also of ascertaining the practicability of an overland route to the "Alert" depôt in that bay, so as to enable us to communicate during the summer in accordance with your instructions of the 30th April. We returned to the ship on the 2nd of June, not having succeeded in getting beyond Cape Beechy. The weather was thick and foggy the whole time, which made the surveying unsatisfactory. The snow so deep and soft that the travelling was very heavy for our doubtful team of dogs. On attempting an overland journey from the North Ravine in Shift Rudder Bay, we found the valley quite free of snow, with large, loose boulders, making it impassable for a sledge.

3. The temperature during the month of May has ranged between +33° and −20°. The coldest day was the 4th, the warmest was the 28th. The mean temperature for the month, +6°.

4. The thickness of ice in the Harbour is 38 inches, the temperature at the bottom in 21 fathoms, 29°·8.

5. Coal expended during the month of May, 2 tons, 8 cwt.; remaining on charge, 94 tons, 15 cwt.

6. Game killed during the month, 6 hares, 1 floe rat, 1 ground seal, and 2 ptarmigan.

June.

7. We have experienced during the latter part of May and the beginning of June thick, muggy weather, with a continued fall of snow which has thawed rapidly. Rocks and cliffs that have a southern aspect are looking very black, and the stillness is continually broken by the falling debris from some neighbouring precipice, caused by the melting snow and ice in the crevices.

8. On the 5th inst. a shooting and exploring party under Mr. Daniel Cartmel, Engineer, Mr. Hart, Naturalist, with 3 men and 6 dogs, and 7 days' provisions, proceeded overland to the head of St. Patrick Bay. This party returned on the 13th inst. all well, having only shot 2 hares and 1 Brent goose, it being still too early in the season.

9. On the 8th inst. a stream of water about 9 feet broad was observed for the first time running down the ravine abreast of the ship.

10. On the 16th inst., the dogs who have lived on the ice about the ship since we were frozen in last year, took to the shore in consequence of there being so much water on the floe.

11. On the 23rd inst., Mr. Daniel Cartmel, Engineer, Mr. Hart, Naturalist, with three men and dog-sledge, victualled for eight days, went to Lake Alexandra, at the head of Musk Ox Bay, for the purpose of shooting and exploring that neighbourhood.

12. On the 23rd inst., Dr. Belgrave Ninnis, with some difficulty, owing to the ground being frozen hard, buried a glacial thermometer 5 feet in the earth, and will register the temperature daily.

13. The mustard and cress he has sown on shore has been most successful, yielding a sufficient quantity to keep the sick well supplied, of which I am sorry to say we have five with scurvy.

14. Parties have been away daily over the adjoining hills in search of game, and invariably returned with a good bag, showing the birds are on their way to these Latitudes for the summer. On the 16th inst., we killed our first musk ox this year, in the neighbourhood of the ship.

15. The few hands on board have been busy during the month draining the houses on shore, and getting the perishable stores out of the water, as the snow has entirely disappeared, leaving the plain a large quagmire.

16 The floes in the harbour are covered with large pools of water, which freeze over during the night the thickness of a piece of paper. No pools or lanes of water visible during the month in Hall's Basin, Robeson Channel, Kennedy Channel, or Archer Fiord.

17. The ship appears to be lying in a ditch of mud, with a black margin of dirt and ashes all round her sides, including filth of every description, but no offensive smell.

18. The thickness of ice in the harbour is 27½ inches. Temperature at bottom in 25 fathoms, 29°·5, at the surface 30°·5.

19. The temperature during the month has ranged between +41° and +16°. The coldest day was the 10th; the warmest was the 25th. The mean temperature for the month was 28°.

20. Coal expended during the month, 1 ton 17 cwt. Remaining on charge, 92 tons 17 cwt.

21. Fresh meat issued during the month, 154 lbs. Remaining on charge, 318 lbs.

22. Game killed during the month of June:—4 musk oxen, 35 hares and leverets, 36 Brent geese, 6 ducks, 63 skuas, 2 ptarmigan, 12 turnstones, 12 owls, 1 knot, and 2 Arctic terns. Total, 173 head.

July.

23. The non-return of the North Greenland party, under Lieutenants Beaumont and Rawson; the Petermann Fiord party, under Lieutenant Fulford and Dr. Coppinger, with dog sledge; the six men and two officers on board the "Alert"—makes a total of 24 officers and men still absent from the ship; and, with some 10 men unfit for sledging, I have not sufficient force for laying out tents towards the Lincoln Bay depôt.

24. On the 5th and 7th instant we had heavy falls of rain, the first since our arrival in this harbour.

25. On the 6th inst. we used a boat between the ship and the shore for the first time.

26. On the 8th inst. a good deal of open water observed in Archer Fiord, extending from Keppel Head to the southern shore.

27. On the 14th inst. lanes of water extending nearly across the harbour. The ice on both sides of the ship eased off several inches, the bow and stern being still confined.

28. On the 15th inst., Lieutenant Fulford, with two men and dog-sledge, arrived from Polaris Bay, having left Lieutenants Beaumont and Rawson with Dr. Coppinger and eight men on the 12th inst. Out of this party of 11, three were bed-ridden with scurvy and four were cripples.

29. James Hand, A.B., died of scurvy on the 3rd of June; Charles W. Paul, A.B., died of scurvy on the 29th of June, and both are buried 50 yards N.E. of the Observatory in Polaris Bay.

30. On the 16th inst. I started with the dingy, on eight-man sledge, and six men, victualled for seven days, with some medical comforts for the sick encampment. Arriving there on the 19th, I remained with them till the 29th, during which time they rapidly improved, when I decided upon returning to the ship with Lieutenant Rawson and half the party, consisting of nine people.

31. Peter Craig, A.B., and Wilson Dobing, Gunner R.M.A., were now the two worst cripples. Dr. Coppinger assured me, with another week's rest, they would be able to undertake the journey across unassisted.

32. I left Lieutenant Beaumont and Dr. Coppinger with two of my marines to start with the remaining five on the 4th or 5th of August. They may therefore be expected in the course of this week. They have an ample supply of fresh meat and medical comforts.

33. Hans was most indefatigable and successful in procuring game and seal for them, all speak most highly of his exertions. The following list of game was killed in Polaris Bay up to time I left:—1 musk ox, 36 Brent geese, 1 hare, and 10 seal.

34. My party arrived on board on the 3rd of August, having experienced heavy and difficult travelling, Lieutenant Rawson pulling with a rue-raddy the whole way over.

35. Lieutenant Fulford, Dr. Coppinger, and two men, with dog-sledge, explored Petermann Fiord for 19 miles in a south-south-easterly direction from "Offley Island." The west land trending away to the eastward, and the estimated distance of the extreme point seen was between 30 and 40 miles off. Three discharging glaciers were observed on the eastern shore, and four on the west. The ice in the fiord may be termed a glacial floe, composed of deep basins and crevasses, with undulating hummocks of very ancient appearance, rendering it impossible for sledges exploring, except they are especially equipped for such service; the in-shore route being too hazardous, in consequence of the continued fall of avalanches from the steep precipitous cliffs (*vide* Lieutenant Fulford's report).

See page 432.

36. At present I am unable to give any information or dates respecting the North Greenland party under Lieutenants Beaumont and Rawson.

37. On the 18th instant there was open water in St. Patrick Bay, it being almost clear of ice. The thickness of ice in the harbour is very irregular, varying from 14 to 23 inches. Mean thickness of three measurements was 19·6 inches.

38. On the 20th instant pools of open water were observed extending from Joe Island to the west coast of Smith Sound.

39. Blasted the ice round ship to clear it away; the ship then swung to the tide.

40. On the 21st instant Mr. C. Hart, Naturalist, reported the existence of coal in a ravine in Water-course Bay; a seam extending for a distance of about 250 yards, by about 25 feet broad, above the bed of the water-course, and extending beneath it.

41. Mr. Daniel Cartmel, Senior Engineer, blasted some portion of the seam to a depth of 5 feet 6 inches from the surface, from which some 60 lbs. of coal have been obtained; he is of opinion that a better quality of coal for steaming purposes could not be used: it is quite equal to the best Welsh, almost smokeless, and burns to a very small quantity of white ash. It has the advantage of being handy to our winter quarters. I have no doubt a large supply might be easily procured.

42. On the 27th inst. a boat proceeded round Distant Cape to bring back Lieutenant Fulford's sledge and tent, depôted there on the 15th inst.

43. On the 28th inst. the whole of last winter's ice disappeared from the harbour, leaving only a few old floes and hummocky pieces. Thin ice was observed to form in patches during the night.

44. On the 29th inst. Kennedy Channel was observed to be almost clear of ice. Lanes of water extending along the shore from Distant Cape to Cape Beechy.

45. The temperature during the month of July has ranged between +46° and −29 . The coldest day was the 16th, and the warmest day the 10th. The mean temperature +38°.

46. Coal expended during the month, 1 ton, 11 cwt., 3 qrs. Remaining on charge, 91 tons, 6 cwt.

47. Fresh meat issued during the month, 805 lbs. Remaining on charge, 842 lbs.

48. Game killed during the month, 6 musk oxen, 6 eider-ducks, 1 long-tailed duck, 2 Brent geese, 32 hares and leverets, 1 seal, 11 knots (and young), 2 turnstones, 5 Arctic terns, 1 ptarmigan, 7 owls and owlets, 31 skuas, 1 ermine and 1 fox. Total, 107.

August.

49. On the 1st inst. Lieutenant Archer, Mr. Hart, Naturalist, with seining party, proceeded to Lake Alexandra, the head of Musk Ox Bay; with one haul they obtained some "salmonoids" (nearest ally charn), the largest of which weighed 1 lb. 6 oz., and measured in length 1 ft. 4 in. The amount caught was so small that they have only been prepared by the naturalist as specimens, but shows that fish do exist, and with perseverance we may be more successful.

50. On the 6th inst. at 4 a.m. Sub-Lieutenant Egerton with one man arrived on board with your despatches. At 7.30 a.m. Lieutenant Rawson left with two men to try and communicate with H.M.S. "Alert," and inform you of the absence of my party at Polaris Bay.

51. On the 8th inst. Lieutenant Rawson returned on board from H.M.S. "Alert" with two men, having killed a musk ox at the head of St. Patrick Bay with his knife, no gun being with the party.

52. On the 9th inst. Lieutenant Rawson, with Sub-Lieutenant Egerton and three men, went to South Cape in St. Patrick Bay to look out for and assist Lieutenant Beaumont's party, expected over from Polaris Bay. The harbour has been full of heavy ice all day, making the communication with the shore very difficult.

53. On the 10th inst. Lieutenant Archer took the temperatures at the following depths inside the harbour :—

50 fathoms rock ..	29°·8.	Surface, 30°·8.
45 fathoms rock ..	29°·8.	
At 20 fathoms below the surface ..	..	29°·1.
At 20 feet below the surface ..	..	29°·2.

These depths are not corrected for error of instrument, Casella No. 130.

54. All stores have been embarked, and H.M.S. ship under my command is now ready for sea.

I have the honour to be, Sir,
Your obedient Servant,
H. F. STEPHENSON,
Captain.

To
Captain G. S. Nares, R.N., F.R.S.,
H.M.S. "Alert."

CAPTAIN HALL'S RECORD. UNITED STATES NORTH POLAR EXPEDITION. STEAMER "POLARIS."

6th Snow House Encampment, Cape Brevoort,
N. Side Entrance to Newman Bay,
Lat. 82° 3′ N., Long. 61° 20′ W.
October 20th, 1871.

Myself and party, consisting of Mr. Chester, 1st mate, my Esquimaux "Joe," and Greenland Esquimaux "Hans," left the ship in winter quarters, Thank God Harbour, Lat. 81° 38′ N., Long. 61° 44′ W., west side Robeson Strait, at Meridian, October 10th, on a journey by 2 sledges drawn by 14 dogs, to discover, if possible, a feasible route inland, for my sledge journey next spring, to reach the North Pole, purposing to adopt such a route, if found better than a route over the old floes and hummocks of the strait which I have denominated Robeson Strait, after the Hon. Secretary of the United States' Navy.

We arrived here p.m of October 17th, having discovered a lake and a river on our way; the latter our route—a most serpentine one—which led us on to this bay, 15 miles distant from here to the southward and eastward. From the top of an iceberg near the mouth of the said river, we could see that this bay, which I have named after the Rev. Dr. Newman, extended to the high land eastward and southward of that position about 15 miles, making the extent of Newman Bay, from its headlands or capes, full 30 miles. The south cape is a high, bold, and noble headland. I have named it Sumner's Headland, after the Hon. Charles Sumner, the Orator and United States' Senator, and the north cape I have named Cape Brevoort, after J. Carson Brevoort, a strong friend to Arctic discoverers. On arriving here we found the mouth of Newman Bay open water, having numerous seals in it, bobbing up their heads; and this open water making close up to both Sumner's Headland and Cape Brevoort, and the ice of Robeson Strait on the move, thus debarring all possible chance of extending our journey on the ice up the strait. The mountainous land (none other about here), will not admit of our journeying further north, and as the time of our expected absence was understood to be for two weeks, we commence our return to-morrow morning. To-day we have been storm-bound to this our 6th encampment. From Cape Brevoort we can see land extending on west side of the strait to N. 22° W., and distant about 70 miles, thus making land we discover, as far as Lat. 83° 5′ N. There is *appearance* of land further north, and extending more easterly than what I have just noted, but a peculiar dark Nimbus Cloud that constantly hangs over what seems may be land, prevents my making full determination. On August 30, 1871, the "Polaris" made her greatest northing, Lat. 82° 29′ N., but after several attempts to get her further north she became beset, when we were drifted down to about Lat. 81° 30′, when an opening in the ice occurred, and we then steamed out of the pack and made harbour, September 3rd, where the "Polaris" now is wintering. We have found that the country abounds with life—seals, geese, ducks, musk cattle, rabbits, wolves, foxes, bears, partridges, lemmings, &c., &c. Our sealers have shot two seals in the open water while at this encampment.

C. F. HALL,
Commanding U. S. North Polar Expedition.

Up to the time I and my party left the ship, all have been well, and continue with high hopes of accomplishing our great mission. Our long Arctic night commenced October 13th, having seen only the upper limb of the sun above the glacier at meridian of October 12th.

We find this a much warmer country than we expected. From Cape Alexander the mountains on either side of the Kennedy Channel and Robeson Strait we found entirely bare of snow and ice, with the exception of a glacier that we saw, commencing about Lat. 80° 30′ on east side the strait, and extending E.N.E. direction as far as can be seen from the mountains by Polaris Bay.

This dispatch to the Secretary of the Navy I finish at this moment, 8h. 23m. p.m., having written it in ink in our snow hut; thermometer outside, – 7°. Yesterday, all day, thermometer – 20° to – 23°, that is, 20° minus to 23° minus, Fahrenheit.

C. F. HALL.

To the Hon. Secretary of the
United States' Navy,
GEO. M. ROBESON.

Whosoever finds this paper is requested to forward it to the Secretary of the Navy, Washington, D.C., with a note of the time and place at which it was found; or, if more convenient, to deliver it, for that purpose, to the U.S. Consul at the nearest port.

Quiconque trouvera ce papier est prié d'y marquer le temps et lieu ou il l'aura trouvé, et de le faire parvenir au plutôt au Ministre de la Marine, à Washington en Amérique.

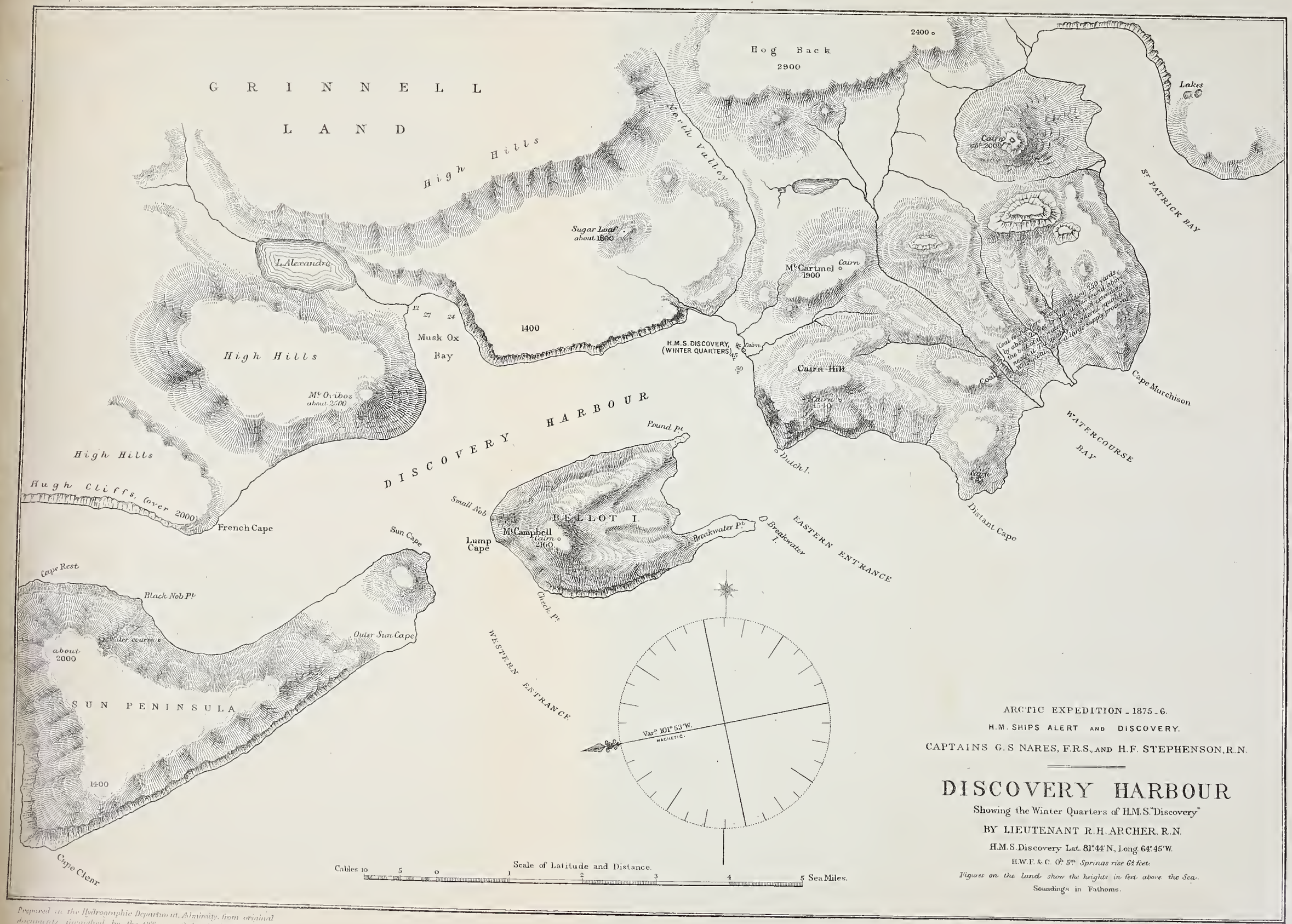
Cualquiera que hallare este papel, se le suplica de que lo envie al Secretario de la Marina, en Washington, con una nota del tiempo y del lugar en donde se halló.

Een ieder die dit papier mag vinden wordt hiermede verzocht, om het zelve ten spoedigste te willen zenden aan den Heer Minister van de Marine der Nederlanden in's Gravenhage, of wel aan den Secretaris der Amerikaansche Admiraliteit te Washington, en eene Nota daar bij te voegen den tijd en de plaats meldende, allvaar dit papier is gevonden geworden.

Finderen af dette papier ombedes naar leilighed gives, at sende samme til Admiralitets Secretairen i Washington, eller til den nœrmeste Embedsmand i Danmark, Norge, eller Sverrig. Tiden og stedet hvor det er blevet fundet önskes venskabeligt paategnet.

Wer dieses Papier findet, wird hiermit ersucht dasselbe an den Marine-minister in Washington zu schicken, und gefälligst zu bemerken an welchem Orte und zu welcher Zeit dasselbe gefunden worden ist.

To face page 62.



ARCTIC EXPEDITION - 1875 - 6.

H.M. SHIPS ALERT AND DISCOVERY.

CAPTAINS G. S NARES, F.R.S., AND H.F. STEPHENSON, R.N.

DISCOVERY HARBOUR

Showing the Winter Quarters of H.M.S. "Discovery"

BY LIEUTENANT R.H. ARCHER, R.N.

H.M.S. Discovery Lat. 81° 44' N. Long. 64° 45' W.

H.W.F. & C. 0h 5m *Springs rise 6½ feet.*

Figures on the land show the heights in feet above the Sea.

Soundings in Fathoms.

Prepared in the Hydrographic Department, Admiralty, from original documents furnished by the Officers of the Arctic Expedition.

Malby & Sons, Lith.

AUTUMN TRAVELLING PARTIES.

LIEUT. WYATT RAWSON. ORDERS TO, 8TH SEPTEMBER. REPORT, 10TH SEPTEMBER.

H.M.S. "Alert" (at Winter Quarters),
(Lat. 82° 27′ N.; Long. 61° 22′ W.),
8th September, 1875.

MEMORANDUM.

To Lieutenant Wyatt Rawson.

With a sledge and boat equipped for seven days you will proceed to Lincoln Bay, estimated to be 25 miles distant from our present position.

The object of your journey is to ascertain the nature of the ice at the foot of the cliffs about Cape Union and south of Lincoln Bay, and what kind of road we may expect for our sledges late this season and during the next spring and summer.

Although you are provided with a boat, I wish you, in rounding the cliffs, to travel along the land as much as possible,

I expect that a party from the "Discovery" will visit Lincoln Bay, before your return to that ship next month, therefore at your extreme position to the southward a cairn is to be erected and the accompanying notice left in it, with an account of your own movements.

In the event of your meeting a party from the "Discovery" at such a distance from this ship that they could arrive here before the 24th instant, you are to inform the officer in command that I should be very glad of his assistance in carrying forward a depôt of provisions from this ship to the N.W. for their own use next spring.

He is on no account to deviate from the instructions he is acting under, unless he can inform Captain Stephenson of the change.

I hope for your return before the 20th instant, but should you fall in with much game, you may prolong your absence a few days.

Any provisions you may require are to be taken from the Lincoln Bay depôt, a notice being left of the quantity taken.

G. S. NARES.

Notice to be placed in a cairn south of Lincoln Bay, by Lieutenant Rawson altered on 2nd October.

"Alert," *8th September*, 1875.

This notice will be placed in the cairn by Lieutenant Rawson, who is about to leave the "Alert" to ascertain the condition of the road under the cliffs about Cape Union. The "Alert" is fixed in winter quarters inside some grounded berg pieces, in a bay one mile east of the low point supposed to be Cape Sheridan.

Land has been sighted about 80 miles distant to the N.W. (true), and nearly the same distance off to the E by N (true).

During the spring of 1876, parties will be detached to the N.W., to explore the north coast of Grant Land.

Lieutenant Rawson and his party of men will return to the "Alert" about the 16th instant.

A depôt of 2,500 rations has been landed near the "Alert." A depôt of 1,000 rations has been placed on the north side of Lincoln Bay in Latitude 82° 9′. All well on board.

G. S. NARES.

H.M.S. "Alert" (Winter Quarters),

Sir,

Friday, September 10th, 1875.

In obedience to your orders, I have the honour to inform you that during my recent sledge journey on the 8th instant I found the snow from six inches to two feet in depth, making the travelling very laborious. On venturing on to the ice adhering to the land, I found it too unsafe to travel upon, two of my men having broken through. On the farthest point of land reached by me (about 3 miles S.S.W. Mag, of ship), the ice was piled in such masses as to render further progress impracticable along the shore.

From the accumulation of ice on this point, I consider it caused by heavy pressure; the hummocks being piled to a height of 30 feet; from the top of the highest of these hummocks I observed small pools of open water; outside land hummocks, and the main body of the ice setting to the south; this was at 7 p.m.

On returning to the ship on the 9th instant, I found the snow more in drifts, and on taking to the new ice, I found it very sludgy, but safe except in places.

I have the honour to be,
Sir,
Your obedient Servant,
WYATT RAWSON,
Lieutenant.

Captain G. S. Nares, R.N.,
Commanding the Arctic Expedition,
H.M.S. "Alert."

LIEUTENANT PELHAM ALDRICH. ORDERS TO, 9TH SEPTEMBER. REPORT, 13TH SEPTEMBER. ORDERS TO, 22ND SEPTEMBER. PROCEEDINGS, 6TH OCTOBER.

H.M.S. "Alert" (Winter Quarters),
September 9th, 1875

MEMORANDUM.

Provisioned for three days, you will proceed with the dog sledges to the westward (true), carrying out as large a quantity of provisions for an advanced depôt as you consider the dogs can drag through the soft snow.

As it is of the utmost importance that we should obtain fresh provisions, both for the dogs and ourselves, should you see any large game you are to give up all other duties and endeavour to shoot it.

Captain Feilden.
Dr. Moss.
Mr. White, Engr.

The shooting party, consisting of three officers and one man, which accompanies you, will remain at your first encampment, where on your return you are to leave the tents and sleeping bags, etc.

During your absence from the first encampment Petersen is to be employed in building snow houses there ready for our future use, should the snow be fit.

G. S. NARES.

Lieut. Pelham Aldrich.

H.M.S. "Alert" (Winter Quarters),
September 13th, 1875.

Sir,

I have the honour to forward you a report of my proceedings while away laying out a depôt with dog-sledges.

September 9th.

At noon I left the ship with three sledges, 24 dogs, a shooting party of three officers, two blue jackets, Petersen and Frederick the Eskimo. The average weight carried in each sledge was a little over 400 lbs.; this included 356 lbs. of pemmican + 42½ lbs. for weight of the cases. The shortest route to Dumb Bell Bay, the place I had determined on as that best adapted for the shooting party to explore, lies across the land, which with light sledges Capt. Markham and I had found quite practicable on the previous Sunday, but now I found the snow too soft, so got on to the ice, which I found quite strong enough to bear us, whenever free from the hummocks, which here and there press hard home on the shore. On meeting these I preferred assisting the dogs over the land to going farther out on the ice. At 6.15 p.m. we arrived at the inner basin of Dumb Bell Bay, which is about ten miles in a straight line from the ships, and about 14 by the route I adopted; about a mile and a half from here one of the sledges loaded with pemmican broke down, which compelled me to unload, and leave it lashed there for the night. Our tent was pitched by the inner basin, its position being shown by a cross in the accompanying chart. The land between here and the ship is low and slopes gradually down to the sea; heavy hummocks visible all along, but here and there a favourable piece of ice for travelling inshore of them, so that with the snow a little harder sledge travelling will be altogether pretty good. The general trend of the land after the first two or three miles is about N.W.*b*.W., the coast is indented more or less all along, and the bays are numbered in the accompanying chart, No. 5 being Dumb Bell Bay.

The wind was from the N.W. (true), and blew sufficiently strong to make it a little uncomfortable for the dogs.

Between the two parts of Dumb Bell Bay is a channel some quarter of a mile in length, and about 70 yards across at its narrowest part. In this was a small patch of open water, where Doctor Moss fortunately shot a small seal (*Phoca fœtida*), which was very acceptable as fuel and also food for the dogs.

The outer basin has an old and hummocky floe in the centre, but this year's ice is between it and the shores, showing that there has been a good lead of open water there during the summer, and I do not doubt but what the whole bay may have been cleared out.

The inner basin is covered with this year's ice, and only a few small hummocks remain to show that ice of any thickness forms there, and even these may have been floated in from outside.

Both Dumb Bell Bay and No. 4 are sheltered to the N.N.E. (true) by low and sickle shaped points bearing a strong resemblance to one another.

I do not see any reason to doubt a ship being able to get into the inner basin, which is sheltered all round, evidently free from heavy ice, and open during the summer, and thus would make an excellent winter harbour.

During the night temperature outside tent + 17°; inside + 28°; wind blowing N.W. 2 to 3; hours travelling 6; estimated distance 14 miles.

September 10th (2nd day.)

Preparing the breakfast was a very long operation, taking about 2½ hours. This I daresay may be partially attributed to want of practice, but difficulty was experienced in keeping the lamp alight (as there was a breeze blowing). At 10 A.M. Petersen and I took a dog sledge and drove to where the pemmican was left on the previous evening. It was just inside the S.E., point of Dumb Bell Bay, and I thought it a favourable place for building the snow houses, so directing him to put up as many as he could after the manner he had adopted when with Dr. Hayes, I packed my sledge with the pemmican, got back to the camp, picked up Frederick and one blue jacket, with a second sledge, and started at 12.15 P.M.

The first six miles I found the ice new and level, but sludgy on the top, and I believe not capable of bearing much more than we tried it with (by this I mean it would not have been advisable to take a heavily packed man-sledge over it).

After rounding the low sickle point (about 2½ miles from camp) of the bay, the coast trends about W.N.W. for 2 miles, and then runs to the southward of west and forms the southern coast line of an extensive bay (No. 6 on chart), about 9 miles across and 7 in depth, the extreme points of which bore about N.W. and S.E. (true). I fixed on the former as the best place for landing the depôt. Shortly after this I found enormous hummocks, some of which were *at least* 50 feet high, piled up against the land, which was of a shelving nature, like that I had previously come across, and therefore shows that the water must be deep to within a short distance, or that tremendous pressure must have been brought to bear to force such heavy ice on a shallow bottom.

I here struck out straight for the N.W. point (Depôt Point on Chart), across a very hummocky floe, and on the way, although great care was taken, Simmons' sledge capsized, and the uprights of one runner gave way. After repairing it we went on until about 2 miles across the ice, when it became so bad that I was reluctantly compelled to make for the nearest land. This I cannot help thinking must have been the end of a small island shown on the chart, although at the time, from the ice being so high, I imagined it to be the mainland.

I hauled the sledges across a point, and again got them on the ice after passing some heavy hummocks. It was now blowing a good S.W. breeze, and the snow had drifted, leaving the pebbles quite bare in some places; the drift flew as high as our waists, and the dogs suffered always.

From here to Depôt Point we had a very rough road, sometimes through heavy hummocks, and sometimes across very old heavy floes, with snow above the knee, between the bare polished patches of rounded ice, upon which it was almost impossible to stand. I was again delayed for nearly an hour repairing Frederick's sledge, which gave way in a similar manner to the two others, but at 10 P.M. we were within a quarter of a mile of the point, and found ourselves on the edge of an old floe, some 10 feet high, between which and the shore was some new sledging ice. As Simmons' sledge had previously broken through some similar ice, and we had to keep steadily hauling at the drag ropes while it broke through 20 yards, before we got it on to sound ice again, I deemed it better to give this ice another night, so we unloaded and pitched tent in the floe, snow about 18 inches thick.

The dogs were quite done up at the end of their journey, and I am sorry to see they do not eat the biscuit, which is a serious drawback.

Hours from camp to camp	$9\frac{3}{4}$
Luncheon	$\frac{1}{4}$
Repairs and relashing	2
Total travelling	$7\frac{1}{2}$
Estimated distance made good	13 miles

Travelled 18 to 20 miles

September 11*th* (3*rd day*).

After breakfast we found a road ashore by handing the empty sledges over the edge of the floe, and then reloading them lightly.

The depôt is placed about 300 yards on the south side, and inside Depôt Point, and some 50 yards above the level of the sea. It is formed in a pile on a small boulder, which will be clear of snow as long as anything there. Depôt Point will scarcely be made out from the ice, until you are some two miles round the N.W. point of Dumb Bell Bay, it will then bear about N.E. (compass), and is the termination of a long range of cliffs of no great height. *Seven* hills of the range beyond (ending with Cape Joseph Henry) may be counted, and are open from here. The hummocks are very heavy and pressed close on the point, and a small patch of open water was visible within a couple of hundred yards of where we landed the depôt.

No. 6 Bay seems to be filled with very heavy ice, and does not show as many signs of being open during the summer as that to the south. Some of the floes must be the accumulation of ice for years, and have actual hills in them 40 and 50 feet high with rounded polished surfaces. I did not, however, either here or during my absence from the ship, see anything that I could put down positively as an iceberg, though some of the hummocks might reasonably be mistaken for them. After the depôt was ashore, and while the sledges were being packed for our homeward journey, I went to the top of the ridge which ends in Depôt Point. Unfortunately it was only some 250 feet high, but from what I saw of the ice I fancy it is much the same between there and the Cape as that I had already travelled over. Cape Joseph Henry bore about N.*b*.W. (true), and at least 15 miles distant. The conical peak which from the ship is seen inside the bluff, is now seen as the extreme. From where I was no open water was visible. The coast line beyond Depôt Point runs nearly S.W., forming a double bay, No: 7, terminating in a double low point bearing about N.W.*b*.N. Behind this again is another broad bay (No. 8), the depth of which I could not see.

I daresay by following the coast line good travelling ice might be found, but the increase in distance would be something very undesirable if it can be avoided.

At 4 P.M. I returned, and we left Depôt Point, making rapid way across the floes and hummocks with the light sledges. I went directly in a straight line, and by picking a careful way among the hummocks between the floes, reached our first camping place at 9 p.m., having picked up a musk ox head *en route* placed for the purpose by Captain Feilden, who had found it about 5 miles from the tent. During the journey I stopped to go up a hill, to look over the bay I had crossed, and it was from here I saw the small island I have placed on the chart, and I concluded that I must have crossed the end of it on the previous day.

On my return I found Simmons absent, and Frederick said he had gone away, but where to he did not know, but on looking at his sledge, I found the cooking gear missing, so I imagined he had gone back to search for it. This I saw he had done from a hill I went to look for him, and he returned after about $1\frac{1}{2}$ hours' absence, having followed our track until he got back what he had lost. I mention this to show that I think he may be depended on, but I thought it only right when he returned, while pointing out on the one hand he had behaved very well, on the other to tell him he must never go away without letting me know where he is going to.

On reaching the camp I found Captain Feilden had started off in the afternoon to walk in to the ship. The remainder all well, but not successful in their search for game.

Hours from camp to camp	$5\frac{1}{2}$
Detained by lost cooking gear	$1\frac{1}{2}$
Estimated distance	13 miles.

Temperature. Outside $+2°$; inside $+14°$.

September 12*th* (4*th day*).

After breakfast Doctor Moss and I walked across the hills to Snow Hut Point, whence I got a good view of the general run of the neighbouring bays, &c., which I have laid down in the chart.

At 2 P.M., having left the tents and gear in the snow houses, I proceeded for the ship, taking to the ice with a view to finding out a route for the men-sledges. About an hour afterwards I met Captain Markham's party about nine miles from the ship. I informed him of our proceedings—advised the inshore route as the best, and told him that once at Snow Hut Point he would travel without difficulty another 4 or 5 miles. I then made for the shore again, as I found the ice very heavy and hummocky outside.

I arrived on board the ship about 5 P.M.; all the party well except one dog "Michael," which was cut adrift in a fit about a couple of miles from the ship. He was seized in exactly the same way on the 10th, but half an hour afterwards he came up, and he was made fast to the sledge and hauled as well as ever.

While camped at Depôt Point one dog went off, and we found him at Dumb Bell Bay on our return.

Remarks.

The lower robes, coverlets, waterproofs, &c., are not fitted with stops, and are therefore liable to slip about the bottom of the tent.

The water bottles proved quite useless when carried under the arm.

Care is necessary with cooking gear, as the flame burnt a hole in the inner lining.

The sockets for the top of the tent poles might be either enlarged a little or a rigid ring put round the bottom, as when the canvass is frozen or wet it is a difficult matter to enter them.

Depôts laid out.

At Depôt Point, 356 lbs. pemmican.
At Snow House Point :—
- 2 five-men tents with fittings.
- 8 sleeping bags.
- 4 pannikins.
- 3 snow knives.
- 1 saw.
- 2 cooking gear.
- 6 gills spirits of wine in tin.
- Chocolate, 9 men, 1 day.
- Tea, 7 men, 1 day.
- Potatoes, 6 men, 1 day.
- Stearine, 20 men, 1 day.
- Pressed meat, 12 lbs.
- Dog biscuits, (about) 40 lbs.
- Seal blubber.
- Fuel for small party, 4 days.

New land, &c.

Beyond the Cape, none. For although on two occasions I saw what might be the loom of land to the northward of Cape Joseph Henry, I cannot say that it was land, although it was curious that on both occasions the end of the loom was on the same bearing, about N.*b*.W.

The land which I have been on seemed to be all alike, and consisted of shale and pebbles mixed with what appeared to be good soil, and plenty of vegetation.

I saw tracks of hare and lemming, but in no great quantity, and a flock of about 10 turnstones flew over our heads while we were pitching our tent at Depôt Point. With these few exceptions, I saw no trace of any living creature, though from the general appearance of the land and the vegetation, I cannot see why we should not get game in the spring.

I have the honour to be,
Sir,
Your obedient Servant,
PELHAM ALDRICH,
Lieutenant.

Captain G. S. Nares, R. N.,
H.M.S. "Alert."

H.M.S. "Alert" (Winter Quarters),
22nd September, 1875.

MEMORANDUM.

Taking command of the dog sledges, provisioned for 14 days (up to 6th October), you will proceed to Cape "Joseph Henry," and endeavour to find a route for our heavy sledges either round it, or across the land inshore of it.

Should the road around the Cape be impracticable for sledges, it is very important that they should receive notice to that effect before they arrive at the best place for them to commence their journey across the land.

Should the heavy sledges start on the 25th instant, they may arrive at that position on the evening of the 28th, but probably will be a day or two later.

If you do not meet them before your return to Depôt Point, you will leave notice of your discovery there, and if you have sufficient provisions left, you are to explore the land to the southward of that position previous to your return to the ship.

G. S. NARES.

Lieut. Pelham Aldrich.

H.M.S. "Alert" (Winter Quarters),
6th October.

Sir,

I have the honour to report my proceedings while absent from the ship in execution of your orders of September 22nd, 1875 (Wednesday). I left the ship about 11 A.M. on that day, and reached the snow valley about Cape "Joseph Henry" on Sunday, September 26th, at 6.30 P.M.

The details of my outward and homeward journey I leave until I have given the result of my observations in the neighbourhood of my farthest point.

At 9.15 A.M. on Monday, 27th, accompanied by Ayles, I started off from the tent, in a W.N.W. direction, and at noon reached the summit of a hill about 2,300 feet high. The only difficulty was the snow, which was in some places above the knees, but the ascent was generally easy (and in a straight line) except near the top, which was somewhat steeper.

Wherever there was a bare patch, which was only about the lower extremities, the ground was covered with loose rubble and pebbles similar to those about the land near the ship.

There was not much sign of vegetation, though soil was visible.

Not the slightest trace of any living animal was seen during the day.

The weather did not promise a very good view, and as we got higher I found a dense mist hanging some 8 or 10 miles from the land between N.W. and N.N.E. Unfortunate in this respect, I was quite the contrary in the place of observation, for instead of a long and undulating plain, which often disappoints one on reaching what is vainly hoped to be the summit, this ended abruptly on its N.W. side in a precipitous descent of over 1,000 feet into the snow-clad valley beneath.

This spot I have called "Observation Peak" in the chart, and it is one of the two paps which are seen next to Cape "Joseph Henry" from the ship, the other being on the same ridge, and not so high.

The land to the S.W. (in the interior) is exceedingly rugged and mountainous sharp peaks. The general direction of the ranges seemed to be N.E. and S.W., but it is not easy to be certain on this point, as they were blended so much together.

The hills immediately beneath me prevented my seeing the coast line for some 15 miles, but beyond that I got a good view, and good bearing of two well defined capes.

Each of them has its distinguishing mark just to the westward (one of the capes is about 30 to 40 miles distant) by a single snow-clad peak of considerable elevation. The bearing of this by compass is N. 28° 58′ E. and the cape N. 31° 28′ E.

The more distant cape, estimated at 50 to 60 miles off, may be recognised by two conspicuous peaks together (twins), their bearing being N. 33° 5′ E., and the extreme cape N. 34° 28′ E.

Beyond the latter I saw no land, and as I watched for over three hours, during portions of which time I had good views through the fleeting mist, I am inclined to believe that no land trends to the northward, at all events for a considerable distance.

Cape Union was visible part of the time, and it bore by compass S. 60° 5′ W.

The cone which is seen from the ship bore S. 30° W. I also got a bearing of "Mount Pullen," but it is so entirely at variance with all others, that I think the snow

had clogged the little catch in the compass. The angle was N. 2° W. I am inclined to think I must have read off 358° instead of 258°, which latter would make the bearing of "Mount Pullen" S. 22° E. (true).

The bearing of the highest mountain I could see was N 36° W.

The weather now became thicker, and there was nothing more to be done, so shortly after 3 P.M. we descended to the tent.

Tuesday, September 28th.

A very thick fog. Calm. Temperature, zero.

During the forenoon employed ourselves building snow huts for amusement.

At 2 P.M. it became a little clearer, and with my companion of yesterday, I started for a walk down the valley between Observation Peak and Cape Joseph Henry, with the intention of getting on to the ice to the westward of the latter if possible. I found as we proceeded, however, that it seemed inclined to clear to the northward, so I gave up the valley, and scrambled up the hill on our right. Yesterday's peak was not visible. We got up about 1,450 (by aneroid) feet, when we became enveloped in cloud, not before I had obtained a good view of a steep cape, bearing N.W. 8 or 10 miles, which was hidden from me yesterday (Nine Mile Cape); a view of this is given in No. 2 sketch on the chart.

The coast between trended to the northward and westward, and appeared to slope gradually up from the sea into the snow valley, which I think may prove an overland route for the sledges in the spring; the only break in it (the coast line) was caused by a low piece of land, the extremity of which did not seem to reach the ice.

Nothing more was to be done from here, and the look out to the northward proved a failure, so we returned to the camp, reaching it at 7 P.M.

Foggy, and a smart N.W. breeze during the night.

Wednesday, September 29th.

Had a look at the weather at 5 A.M.; thick, snowing, wind N.W.; temp. + 12°. Breakfast at 8.30 A.M.

About 11 it became clearer, and shortly afterwards I took Simmons, the Eskimo, and both dog sledges up the same valley as yesterday, to try and reach the ice and return round the cape.

Our way through the valley was hard work, even with empty sledges, and I found the snow worse than yesterday. After travelling some three miles, I came to the end of the valley in a slightly rising ridge, which connected Cape Joseph Henry on the right with a similar cape about half a mile on the left.

Beyond this ridge was a precipice, some 400 or 500 feet, down which it was *quite* impossible to get the sledges in safety. Having determined the impracticability of this route, I clambered up another 200 feet on the right, and had a very good view from N.W.*b*.W. to N.*b*.W. (true). Had there been land within 70 miles I think I should have seen it.

To the eastward of this it was too thick to see any distance, and "Nine Mile Cape" hid my view to the westward. I spent two hours up here on the look out, when the mist came upon us, and we travelled back to the tent.

Remarks.

From my observations during the three days above-mentioned, I feel nearly certain that there is no near land between N.W.*b*.W. and N.*b*.W., and I do not think there is any to the eastward of north beyond that already seen from the ship, although I cannot be quite certain, as I got no bearing of the extreme.

Cape Joseph Henry is a precipitous cliff between 800 and 1,000 feet above the sea, gradually sloping upwards to the south-west till it attains an altitude of 1,700 feet. The valley between it and another similar cape ("Near Cape"), about W.*b*.N., is filled with snow, and drops suddenly. As I have before stated, the ridge rises as it reaches the "Near Cape," which is the termination of the spur, which attains an altitude of some 2,300 feet in "Observation Peak."

Beyond the "Near Cape" are two steep and snow-clad precipices, which seem a continuation of the same snow level as that already mentioned; while beyond them again comes the gradual sloping plain of snow, stretching to "Nine Mile Cape."

To the southward, Cape Joseph Henry is connected by a ridge rising some 900 feet with the remarkable looking cone seen from the ship, about 1½ to 2 miles distant. On the inshore side of this cone is a solid wall of either compressed snow or ice, leaving a regular ditch between, about 20 or 15 feet deep. From this I judge that the valley is never free from snow, even in the height of summer.

There now remained to my mind two other possible routes for the sledges:

I. By the ice round the cape.

II. By taking to the valley south of the cone, passing to the westward of Observation Range, beyond the snow bluffs, and so down to the sea.

The latter I would like much to have tried, but day by day showed me the snow was increasing, and that twenty-four hours of a good snow fall might block us up, or at all events place us in difficulty. Added to this, I believe at the present time it would prove too much for the men, as it would involve a march of some 10 or 12 miles, snow up to the knee, and attaining an altitude of some 400 feet above the sea level; so I made up my mind to try by the ice only. Temperature to-day + 9°. Snow at 12 inches deep + 13½°.

Thursday, September 30th.

Another thick and foggy morning. Temperature + 8°.

Under way shortly after 8 A.M.; a good breeze from the N.W., sleeting and thick. Marched round to the ice at the foot of the cone. The hummocks are piled close against it, which rises very rapidly from the sea. We managed to struggle a few hundred yards, in a passage barely wide enough for a big sledge to go, and then came to a full stop. Directing Simmons to take the sledges back about half a mile and pitch the tent, Ayles and I struggled on a little farther to see what might be beyond, but it became too bad even for walkers, nor could we climb up the land either. From a few feet up I saw that a route inside the shore hummocks was not to be found, that is, unless by cutting a road beforehand. The shore hummocks do not extend far, perhaps between 100 and 200 yards, but beyond them was half a mile of water with heavy floes on the other side. These floes have been moving all the time I have been here, at least the water has constantly changed. It may chance that they come close on the cape, when the sledges might perhaps stand a chance of making use of them, otherwise I do not see there are any means of getting round except by boat.

At 2 P.M. the ice was moving rapidly to the northward against a good strong wind. The Eskimo got a shot at a seal in the water, but missed it. Temperature + 10°. It is somewhat remarkable that all the capes bear a very strong resemblance to one another. They are precipitous, each has its own peculiar hill behind it, and I should think they are all about the same height.

The heights of the different hills about Cape Joseph Henry are obtained from the aneroid, and may therefore not be very correct. I give the readings however.

Going up Observation Peak.

At starting, 29·85 (150 feet above sea).
Cone took the horizon, 28·78.
Highest point of Joseph Henry, took ice, 28·10.
On reaching Observation Peak, 27·64.

See note at the end of Report.

Coming down.

On leaving top, 27·59.
On reaching tent, 29·74 (150 feet up).

I kept the barometer in the waist band of my trowsers always, so that the temperature was fairly equable.

I now felt that I could do no more by remaining any longer, so on getting to the tent we had luncheon, and started on the homeward journey at 2·30 P.M., with a strong N.W. wind and thick weather.

I have now to give the details of my journey.

Wednesday, September 22nd.

At 11 A.M. I left the ship, in command of two dog sledges, seven dogs in each, two blue jackets (Ayles and Simmons), and Frederick the Eskimo. I arrived at Snow House Point at 4·20 P.M., having been delayed a great deal by several of the dogs falling down

in fits, no less that eight of them being thus attacked, and two or three of them twice or three times over. In addition to this, one of the sledges broke down, exactly in the same way as on my previous journey.

I found the snow houses both blown down, but the tents and gear all right, so I camped, and set to work to build up one hut for the depôt. This occupied us until nearly 9 P.M. Temperature + 8½°. On our way I found the ice in the bays more cracked, but I do not think the gale had cleared them out sufficiently for the ship to have got round into them.

Thursday, September 23rd.

Under way at 8 A.M. Temperature + 14°. Inside tent at six A.M., + 31°. Barometer 29·60. Calm and overcast.

Shortly after starting I was obliged to cut one of Simmons dogs adrift, and I was constantly hampered by fits as yesterday. I now had 13 dogs left. The second sledge gave way in the runner, and I cannot help thinking the tenons of the uprights from being fixtures, make the sledge too rigid and do not admit of enough freedom for passing over rough ice. I may here state that during the whole of the time I was subsequently away, the sledges stood exceedingly well, and among very heavy and bad ice, the uprights being unsupported except by the old lashings, and the runner being kept out in its place by a spare batten being used as a lever.

At 9·30 A.M. I passed close by the boats, the ice between which and Dumb Bell Bay had not altered, but there was more snow on it. From here I steered about W.N.W. for the north point of the small island, and except the snow, found but little alteration in the ice.

A better route for the future will be to pass to the south of the island, and then get away towards the land to the westward, as the hummocks on the north side are very heavy and much disturbed by any wind.

From the top of the island, about 150 feet, I found it was about three-quarters of a mile in length, terminating at its southern end in a low narrow spit. The ice beyond had been much broken by the last gale, and I therefore gave up the idea of going direct for Depôt Point as before. This I was not very sorry for, as I half expected I should be brought up by water off there.

At 1.30 P.M. I hove to for luncheon under the lee of a large hummock, and not a great distance from a point which divides the space between the boats and Depôt Point into two bays. The whole I have called previously "No. 6 Bay," and for reference I call these "*A*" and "*B*," the former being the most southern one. A little to the N.W. of where I now was, there was a larger patch of new ice, with no snow on it, which evidently showed where the heavy floes had separated during the gale. I sounded this with an ice chisel and found it quite strong enough to sledge over, congratulating myself on the rapid progress I was making towards the cliffs ahead. My triumph was short lived, for as we got well into the middle, I observed the ice bending as we proceeded, and I turned round to order an alteration of course towards the old ice between us and the land just as the second sledge broke through. Beyond the discomfort of a damp sleeping bag, and a stiff lower robe, I am happy to say nothing of moment resulted, though from the dogs being very much frightened, it was with some difficulty we hauled the sledge out. The remainder of the afternoon was passed in finding our way over and through the hummocks, with detentions caused by the constant breaking down of several of the dogs, one of which I had on the sledge the greater part of the day. At length, about 5 P.M., we arrived within a quarter of a mile of the cliffs, some 3½ to 4 miles south of Depôt Point, and were brought up by similar ice to that which had done us such a bad turn before. I made up my mind at once that I would not camp on the floe, and also that I must look for a passage across, rather than round the point; so I turned to the southward, and got ashore as soon as the ice allowed me, which was in a ravine on the west side of "*B* Bay." Leaving the tent to be pitched by Simmons and Frederick, Ayles and I started up the ravine, and thence up a range of hills, some 600 or 700 feet high, in the hope of finding a passage to the ice on the other side of the range. In this I was disappointed, and found that I must get farther to the northward to enable me to get across. From the highest point I had the satisfaction of seeing that I had gained by coming round instead of across No. 6 Bay, for a westerly wind was blowing, and there was an increasing lane of water extending from Depôt Point some 200 or 300 yards across. The ravine we camped in runs about E.*b*.N. and W.*b*.S., its sides being simply dried mud, with no vegetation, but containing great quantities of a bivalve shell, some of which I have brought back, and which I picked up from a good 100 feet above the sea level. It did not at all resemble the raised beaches, though I did not see any hills either numerous or high enough to

account for its naving been formed by melting snows. Beyond the mud, which extended about three-quarters of a mile from the beach, the stones, pebbles, and soil were the same as near the ship. Plenty of signs of vegetation, and numerous traces of either reindeer or musk ox ; I say either the one or the other, as, on inquiry, I find that the traces more nearly resemble those of the former than the latter animal. I returned to the camp shortly before 8 P.M.

Friday, September 24.

On examining the dogs in the morning, I found one so utterly useless and so ill, that I gave orders to kill it, which reduced the number to twelve.

A fine morning, with a thermometer I should like to have seen lower (+21°), as I had nothing to do but try and get across the new ice which had turned me back yesterday afternoon. On reaching its edge I divided the loads, and by making two trips succeeded in getting over all right, the runners occasionally breaking through.

This brought us on to a very old floe about midway between our ravine and the point ; it did not carry us far, and we were constantly coming across lanes of young ice and water extending to the eastward, which compelled us to go a most round-about and losing route ; and that over the most tumbly and disagreeable ice I had yet come across—in the course of which the fore end of a runner gave out. At length I arrived within a quarter of a mile of Depôt Point ; the water turned me back for about a mile, when I managed to get on to an ice foot, which exists for a few hundred yards. It was 3.30 P.M., and we had been at it for about 7 hours, having made only 5½ miles to the good.

On reaching the shore, while luncheon-tea was making, I took Ayles with me and scrambled along the steep cliffs to the depôt, which was found to be all right ; from here we went up the hill, where we built a small cairn, ready for a record, should one be necessary on the homeward journey. From this position I took the following angles :—

Cape Joseph Henry, N. 83° 35′ E.
Observation Peak, N. 76° 10′ E.
Sun's bearing, N 352° 20′ E. at 8h. 24m. by chronometer.
Gap of Mount Pullen, N. 245° 27′ E.
Small Island in No. 6 Bay, N. 244°· 20′ E.

The ice beyond the point was much broken up in places, showing an amount of disturbance which acted as a warning not to get too far away from the land, even supposing we could have rounded the point without doing so, which we could not. I now walked along the top of the ridge to the southward, and found that what I had imagined on my previous visit to be a peculiar peninsula beyond, really enclosed an almost circular lake, or at all events a piece of water which I could see led to the sea beyond ; and as the land was only from a mile to a mile and a half in breath, it was the most favourable place for our getting across. I got back to the sledges as quickly as possible, had luncheon, and by 8 P.M. had hauled both sledges up some 200 feet, where I camped for the night, having made good about 6 miles in 11 hours' work. Temperature + 8°. Calm and clear, a beautiful night, which made me regret not being at my destination.

The dogs were free from fits through the day, which promised an improvement much looked for.

I endeavoured to make out the dip of the stratification in this range of cliff, and as far as I can judge it is about 8° towards the N.E. (true) ; and the general direction of the range is N.N.E. and S.S.W ; very steep, in some places nearly perpendicular, with a talus. Hummocks are close along, and there is no ice foot except for a few hundred yards in the neighbourhood of where I came ashore. I imagine there will always be some uncertainty as to getting beyond, as the floes shift off and on, and what might prove a landing place in one journey might be water at the next. On this occasion I was extremely fortunate in being able to get ashore within half a mile of the most desirable place for crossing the land.

Saturday, September 25*th.*

A calm, fine, and clear morning. Temperature − 3°. Barometer 29·60 (200 feet high). By aid of drag-belts and half loads the overland route was accomplished, the distance being about a mile, but not enough snow to render it easy work, in fact, the land was nearly bare, except in patches, which we availed ourselves of as often as possible. On reaching the ice with the first load, I found it to be a solid floe of rounded hummocks, bare of snow and of great age, but I was not certain whether I was on a lake or not.

Our course across was about N.*b*.W. (true), when Cape Joseph Henry was in a line with what proved to be the passage to the sea. On nearing this, the solid floe terminated in

a sheet of clear, beautiful ice, which I doubt not is of this year's formation, and which was about 10 inches in thickness, and over nearly 6 feet of fresh water. We appreciated the fact of our being on a fresh water lake most thoroughly, and everyone turned out to be thirsty. Looking down the hole we had made, I found the bottom to consist of pebbles and stones.

Our second trip was completed about 3 P.M., and I established a two-day depôt on the east side of the ravine which runs from the lake to the sea.

The lake is nearly circular, and about $1\frac{1}{2}$ miles in diameter. The floe on it is massive and old, except about the exit, where new clear ice was found. It is surrounded nearly by hills, but of no great height, and is, I should think, about 60 feet above the sea level. Between it and the sea on its northern side, runs a narrow and winding ravine, about half a mile in length, the bottom of which contained patches of fresh water ice, and may have been a running stream during the summer. Temperature at noon to-day $+5°$.

By 3.30 P.M. we continued our way beyond the lake, and I had to cut another dog adrift, it being far too constantly ill to do anything; this left five in one sledge and six in the other. It may perhaps be thought more humane to kill rather than desert dogs; but I have found from experience that sometimes they follow your tracks, and that they again become useful; and on my return to the ship last time, a dog by name "Michael" went down in a fit within a couple of miles of the ship, he was cut adrift and left on the ice, remained away some eight days, during some of which a furious gale was blowing, and then returned to do good service on the present journey. The only harm his absence seems to have done him is to have given him an unappeasable appetite, for he is less particular in what he eats than any other of the creatures; harness, rope, leather straps, hide lashing, painted canvass, &c., have all suffered from his peculiarity; and on one occasion he investigated the contents of the metal ladle with such eagerness that he bit a piece clean out some two inches in length.* I am not quite certain that I am right in placing stories of this description in my report, but I do it in order that those who may in the future be away with dogs, may also realize the fact that unless great precautions are taken, they will wake up perhaps to find the animals have left them destitute of biscuit and bacon, as happened in our case before the end of the journey.

Our travelling now was excellent, along a smooth shelving ice foot inside the hummocks, which had grounded some distance from the shore, but the ice looked too heavy to leave the land—and for some little way I did not—however, I found I should have a long way to go round, and so eventually struck out for the low shelving point at the north point of Bay No. 7. This point I called after Simmons, one of the blue jackets with me, and a similar looking point at the extremity of Bay No. 8 I called after Ayles.

About two miles after I left the lake, I picked up a musk ox head, which I used as a record and placed in a prominent position.

I found the ice in crossing the bay much as usual, very heavy and very hummocky; and indeed the same may be said of it during the whole journey. On reaching the shore, just south of Point Simmons, I found the travelling good again, and at 7 P.M. camped on the ice foot some two miles round it. The weather during the day was calm and fine, but rather hazy—a parhelion was visible during a great part of the afternoon, but it was not brilliant. The temperature on camping was $-5°$, being the coldest night we had.

Distance made good, about 11 miles.
Distance travelled over, 16 miles.
Number of hours work (including portage, &c.), $10\frac{1}{2}$.
Deduct for luncheon and depôt, 1.

Sunday, September 26th.

Temperature inside the tent exactly zero. Light air from the S.W., b.c.; barometer 29·90.

On leaving camp, I followed the bend of the coast line along excellent ice foot for some distance, and then struck out across towards Point Ayles, which bears about N.W. five or six miles from Point Simmons. For the first time since leaving the ship we got into a fog, which however cleared partially as the day wore on. A similar parhelion to that of yesterday was seen for a long time. Beyond Point Ayles, which I reached at 10.40 A.M., the coast line trends very much more to the northward for about two miles, where I thought I saw the entrance to another bay. I subsequently found

* This ladle is in Captain Feilden's possession.

that it was of no depth worth speaking of, the land trending almost due east for five or six miles, till it reaches another point higher and rather steeper than those immediately south of it.

I call this "View Point," as in rounding it Cape Joseph Henry is seen, or rather I should say, the remarkable cone immediately south of it.

About Point Ayles the land becomes much more hilly and lofty in the interior, though the shelving beach continues as far as View Point, that running east being so low, it is not made out to be land at all until you are close up to it. I observed several tracks on the floe, which I imagine were those of "fox," but it is possible they may have been "hare." At 1.10 P.M. we stopped for luncheon off View Point, where the hummocks barred our farther progress along the ice foot, and while the tea was making, I walked up the hill and soon arrived in sight of the cone, which bore about due north some four miles. After luncheon we got the sledges over the snow-clad brow of the hill, which was rather heavy and troublesome; and when about two miles further on attempted to force our way through some hummocky ice for about 50 yards into a lane of new ice, which promised to take us round Cape Joseph Henry. In this however I did not succeed, and taking to the land we made our way through deep snow till abreast the cone and to the westward of it, where I pitched the tent about 150 feet above the sea level.

I have already reported my proceedings during my stay there on the nights of September 26th, 27th, 28th, and 29th.

Thursday, September 30th.

At 2.30 P.M. I began the homeward journey. Temperature + 10°, and a strong breeze from the N.W., the weather thick and snow falling.

At 6.15 P.M. I camped on the low land N.W. of Ayles' Point, having found the travelling much heavier than before, from the lately fallen snow.

Friday, October 1st.

It blew hard from the N.W. during the night; temperature inside the tent + 20°; snowing heavily in the morning, and the wind fell light. About 8.30 A.M. it partially cleared. The bag of biscuit and the remainder of our luncheon bacon had been left outside the sledge trough by mistake, and on going out of the tent at 5 o'clock, I had the mortification of seeing that the dogs had eaten all. Fortunately we had the provisions for the day in the luncheon haversack, and the depôt I had left on the lake I knew I could reach in two days. But I was obliged to give up a plan I had intended carrying out of going right round by the coast line, and endeavouring to determine the depth of the different bays, &c., with more accuracy than can be expected from taking short cuts amid heavy hummocks. At about 1.30 P.M., while crossing toward Ayles' Point, I heard, "one, two, three, haul," and knew I was somewhere in the vicinity of Commander Markham and his party. From the top of a hummock I found them about a mile distant, making standing pulls across very bad ice, in the direction of View Point. Having attracted their attention we altered course towards one another and communicated. The route by which I had come being easier than that which they were taking, was adopted by them, but long after we had parted, the "one, two, three, haul," showed me that they had not got through the short distance of bad ice previous to getting on to the ice foot south of View Point. Captain Markham reported all well, in good spirits, and "working splendidly," but that he had found the travelling exceedingly heavy, and had been obliged to resort to standing pulls for the best part of three days. At the time I met him, he had come about 2 miles from his camp on the floe of the previous night, in about five hours. I informed him of what my ideas were about getting round the cape, and in fact read from my journal, "that a route for the sledges inside the shore hummocks is quite impracticable, except of course by a great expenditure of time, which means provisions, but that with a boat there will not be so much difficulty." I also gave him a rough chart of the neighbourhood, and told him that I had given up my intention of remaining another day, on account of the rapidly accumulating snow in the valley. He replied that after what I had told him he should not attempt getting either round or across, and I said I thought the depôt would be as well placed at the foot of the cone as anywhere, or else close by View Point. He hoped and I expected him to camp on View Point that night (Friday, October 1st), when he would have 14 days' provisions remaining, with a depôt to fall back on at the boats. From here a day's march I fancy would take him to the cone, whence, if he cared about judging for himself, he would be within easy walking distance. We parted about 2.30 P.M., and half an hour

afterwards, while eating our luncheon, I saw the commander struggling back, he had brought us some rum which they could spare to fill up the deficiency caused by our leaving the ship with eight days for three men, instead of fourteen days for four men; we fully appreciated this kindness on his part. We also obtained a day's biscuit from them, and brought back some of their clothing which having been wet, was hard frozen and not wearable. About two hours after I left them, I came to where they had camped the previous night, and found their tracks of the greatest advantage, as I had been steering by compass in a dense fog, and snowing. I followed them till 7 P.M., by which time I was south of Point Simmons, where I camped for the night. I was of course following as nearly as possible my outward route, which the commander had also taken as long as he could follow my tracks.

Saturday, October 2nd.

Did not start till 9.15 A.M.; the weather was very thick; temperature inside tent + 22°; barometer 30·05.

Ayles was not very well during the night, being touched with a little cramp internally; a self-administered dose of pepper and water did away for any necessity for action on my part. Being pretty certain of my position, I steered by compass across the bay, making as straight a course as possible by marking hummocks. The increase of snow had entirely altered the appearance of everything, and what appeared before as very hummocky ice now looked like a level floe. It was impossible to pick a road, and very slowly we struggled on, sometimes coming suddenly against a hummock, and at other times falling helplessly into a hole full of nothing. At 11.30 A.M. I reached the shelving ice foot, as it turned out within 50 yards of where I had placed the musk ox head; this I picked up; it had been passed and noticed by Captain Markham and party. An hour afterwards in a very thick fog, I picked up my depôt at the entrance to the lake, and pushed on to it, having been looking forward to water from it for luncheon-tea. The hills at the sides of the ravine, and the ravine itself were knee-deep in snow, where scarcely any existed when I passed before; the clear and polished floe was covered, and we had a little difficulty in finding out the position of our former water-hole. A pick-axe soon brought us to beautiful water; the ice seemed to have increased in thickness about two inches or perhaps a little more, while drawing some water Frederick noticed some fish moving about; I went immediately, and there saw some small ones about six inches in length swimming close under the ice in the hole. I dropped pieces of biscuit in, to see if they would eat it, but they took no notice of it; however I had a good hour before me during luncheon, and I was very anxious to catch a specimen. This I did with the aid of a bent pin and a small piece of bacon; in an hour and a half I got three of them; they proved to be a kind of trout, which I packed in snow and brought on board. Temperature + 9°. The thickness of the ice was about 13 inches, and the temperature of the water a shade under 32°; depth, 5½ feet, with a pebbly bottom. All the fish seemed to be much of the same size, and I saw none larger than those caught.

If the snow made it worse for getting across the lake, it made easier work for us across the land, which we did with comparative ease, and without unpacking the sledges. Once over we got on to the ice foot and turned to the southward, but our progress was very slow, owing to the execrable state of the ice foot; the ice of which was for some distance far too weak to try, and indeed one of the sledges went through in doing so. About 7.30 P.M. I got inside a small point, and as it was tolerably level I camped there, not at all sorry to get off the treacherous and very sludgy ice we were obliged to travel over.

Sunday, October 3rd.

Thick and snowing, not at all a fine looking morning, occasional glimpses of the land about Sickle Point through a floating mist. We crossed the sludgy ice all right, and I then steered for the south point of the small island, having the good fortune to hit off a very extensive floe, free from all but heavy rounded hummocks, and the only difficulty in crossing which was caused by the deep snow covering the irregularities out of sight.

This lasted for nearly half way across; a heavy and slow haul through heavy hummocks at its edge brought us on to another similar floe, but somewhat smaller in extent, after which our way became far less agreeable, leading through signs of heavy nips, and ultimately on to a floe some 10 to 12 feet above water, which had been broken in many places, the different portions being more or less separated, having small chasms between with water beneath. Jumping the dogs across these was not very nice work, nor did the animals seem to like it.

Once round the point of the island, which I passed at about half a mile distant, we got on to very fair floes, bothered only by fogs and snow; reached the boats at 6 P.M., and camped about 1½ miles beyond them, which made us late, and very dark work for the cook, but I did not dare to trust the dogs nearer Captain Markham's depôt.

The beautiful ice foot between the boats and Dumb Bell Bay is quite spoiled by the accumulated snow, so that I was much disappointed in not finding what I had looked forward to as very easy travelling.

Monday, October 4th.

Temperature inside tent, +22½°.

Barometer 30·21; wind N.W., 2·3 o.g.

Snowed a great deal during the night. I vainly imagined on starting we should be on board in the evening; steering by compass through a thick fog, I went as nearly straight as I could from Sickle Point to No. 4 Bay, thus passing a considerable distance from Snow House Point. Here we remained for luncheon, and afterwards manned the drag ropes and worked with a will to get on board, but the dogs were quite done up and insensible to persuasion of every kind, some of them actually dozing off as they sat in the snow, so again we had to pitch the tent at a distance from the ship as far as I could judge of about five miles. Temperature +1°, snowing and calm. Our cooking gear having giving out, boiling the tea was a matter of great difficulty, and after it we preferred rolling ourselves up in our bags to having dinner, which was just at midnight.

Tuesday, October 5th.

Breakfast at 8.15 A.M., and under way as quickly as possible. Temperature inside the tent +18°; barometer 30·27; very thick and snowing, calm. The travelling not at all the better for last night's snow. Made small progress, so clapped on the drag belts; and finding that the dogs did not keep steadily at their work I shifted the principal weights on to one sledge, harnessed all the dogs to it, and the two blue jackets and myself dragged the other one a-head, thus clearing the snow a little for the dogs, who sunk sometimes above their muzzles in the soft snow. In this way we proceeded till 1.30 P.M., when we lunched off the remains of the biscuit dust and frozen meat, not caring to wait long enough to cook tea, after which we again set off, and as there appeared no chance of our reaching the ship with both sledges, I packed one with the tent, lower robe, coverlet, waterproof sheet, pick-axe, shovel and snow saw, and left it on the far side of the nearest bay to the ship, about 2½ miles distant. The spare tent pole I lashed to the back of the sledge in the event of the snow drift becoming deeper, to mark its position, and two days' provisions of everything but biscuit and perhaps stearine is also in the trough. One tent rope I had to bring on as a drag rope, which leaves only one with the tent. We now got on a little quicker, and in due course I recognised the ravine, rounded the point, and arrived on board the ship about 8 P.M., finding the ice very sludgy, but far preferable to what we had been travelling over.

Remarks.

During the whole time I was away we used a cooking apparatus which had been suggested by Mr. White, and made in a hurried manner of light copper sheeting by the armourer of the ship. The object was to gain an increased heating surface by the introduction of a hollow cone up the centre of the kettle. The lamp which was made for it originally gave out in the joints at the first trial on board the ship, and one from the five-man cooking apparatus was substituted, without however fulfilling all the conditions which Mr. White had bargained for. At our first trial at Snow House Point, with a temperature of +8½°, we got four pints of water in seventeen minutes, raised it to boiling point in forty minutes, and had both tea and "hoosh" in little over the hour. As a rule, however, with the lamp trimmed by the cooks themselves, water took nearly an hour boiling. This time I feel quite sure would have been very much reduced had the lid fitted better, and the whole apparatus been better made. In economy it compares very favourably with the small cooking gear supplied, and I have no doubt it would be very quick in action were spirits of wine used instead of stearine; this however I did not try, having taken only the latter as fuel.

As a matter of stowage it is very much handier, and altogether I believe that with more time and care expended in its manufacture and the material of a slightly stouter description, it will prove a decided success. Even in its shaky state it was much preferred by the cook to the service five-man cooking gear. I have to thank Mr. White

for the trouble he took in getting this made for me, on my asking him if he could suggest any improvements on the service apparatus.

The kettle gave out two days before we reached the ship ; this may have been partly due to the rough handling of it one night by the dogs. I heard from Commander Markham, that the larger cooking gear answers very well, so that I daresay it may be only the five-man apparatus which is so long, and as Mr. Parr has a twelve-man one away with him, and only an eight-man party, it will be interesting to hear whether it does or does not prove quicker and more economical, the only drawback being the weight. The wicks were made from bread bag and old canvas, stearine or bacon lard heated, and then the wicks dipped in and packed for future use , we did not find difficulty in lighting them except once, when I poured a little spirit in a spoon, lit it and poured it on the lamp ; before it burnt out it melted the top of the stearine and the wick caught all round. I also on one occasion found that using a little spirit with the stearine produced a finer flame and much quickened the boiling. This would be handy in case of requiring hot water for medical purposes, and perhaps to quicken the luncheon-tea in the middle of the day if very cold weather.

I endeavoured as much as possible to keep the cook inside the tent. My routine on stopping for the night, was for the cook to light up at once, while the remainder of us got up the tent, placed the gear, &c. the dogs were then fed, while the cook brought his gear into the kitchen, entered the tent and shifted clothing ; nor had he to leave the tent again, for while banking up with snow, a sufficient quantity was placed under gear from off the sledge ready for use in the morning in the porch. The increase in the cook's comfort was very great, and the delay in getting the dinner not very much, but the tent door cannot be closed till afterwards; with a very limited number of cooks, however, as in dog-sledging, some plan of this kind becomes more necessary, and the rest of the party must try to put up with a little discomfort.

A pair of loose general boots is much required. I think they should be large enough to slip into, with night foot gear on, including the moccasins, and if possible made of some material which will not get stiffer when frozen. Wood seems to me more desirable than duffle, and as they could be kept on by a couple of straps and waist belt, the fit would not much matter.

The tent and gear all answered very well, except the waterproof sheet, which becomes very stiff and hard when frozen, and is then very much too easily cracked, ours has a hole in it some 18 inches in length.

The difficulty in getting the tent poles into the canvas sockets at the head of the tent, led me to packing the sledge with tent and poles together ready for pitching, this plan I found to answer very well. Small pockets for the ends of the tent spreaders are required, there being nothing to keep them from coming down.

The provisions were all extremely good; we used preserved meats in lieu of pemmican ; the allowance was enough, and the mixture with onion powder and Edward's potatoes excellent. I cannot speak too highly of the compressed tea ; from the way in which it is made up it is easily handled, and the allowance makes a mixture which will well bear additional water without losing much flavour. As a substitute for the mid-day grog it was much appreciated, and as far as my party are concerned, we should be glad to do away with the remaining rum and have another allowance of tea, but I am afraid the extra time and fuel required for the boiling could not be spared.

The bacon was also excellent, and we enjoyed it at luncheon ; it did not freeze while we were away, the lard in which it is packed makes capital fuel to burn with stearine or by itself.

The only error in our allowance of provisions was the rum, we having left the ship with 24 rations instead of 56 ; this arose from the steward being busily engaged ashore, and forgetting to alter the original order given of three men for eight days, to that subsequently given, of four men for fourteen days.

The Dogs

At starting and for some days afterwards were subject to a seizure which seemed to arise from something like a cramp in the stomach, as I found giving them a good hard rubbing with the tent brush eased them a little. They rolled over on their side, generally I think the right side, in violent convulsion, succeeded almost immediately by foaming at the mouth in most cases, though not invariably, and passing water in a spasmodic manner. This lasted for four or five minutes, when they became more quiet, and seemed somewhat exhausted; they then struggled to get up, and ran round about and in and out among the other dogs in the wildest manner, gradually subsiding ; when I again proceeded with

the sledge they beginning to pull as they recovered their strength. As a rule each fit would delay me nearly ten minutes. The last one was the night I reached my camping place in the snow valley, and the following day I gave them a rest, so that perhaps some of the fits may have been due to the sudden hard work. The dogs seemed to feel the cold very much, which I can hardly understand; in the morning they were always shivering, and for the matter of that, Frederick felt the cold more than we did, though he had quite as much if not more clothing than we had.

The best dogs we have are the brown dogs, the others becoming easily frightened, and not doing one half the work; next to the brown dogs are the black and white ones, the light coloured ones being the worst, both in disposition and as regards work.

They ate the biscuit which had been mixed with walrus, but preferred the preserved meat. I am afraid a pound per diem, when they are in full work, is barely sufficient for them, and it is very difficult to equalize the allowance. Dogs are not of much use when the snow becomes more than twelve inches deep, they are frightened and unable fairly to exert their powers. On smooth floes they are very rapid, but where men have to lend a hand, the unanimity of action which prevails in a man-sledge is lost, and by no means could we get our dogs to haul when we did. This makes the labour much greater, and it is not agreeable to find on looking round after a hard struggle in the belt to get the sledge ahead, that some of the dogs are not hauling, and the others helping them, and yet ordinarily they do a very great deal of work, and if much may be said against them a great deal may be said for them. We found digging their frozen food out of a black bag with an ice chisel no very easy matter, and in the spring I think it would be advisable to have a bag made; with the mouth opening lengthwise, and fitted with a good lacing or roundabout lashing.

The men wore in the day time their drawers, duffle trowsers, under flannels, and thick service guernsies, boot hose, blanket wrappers and duck boots and overalls. At night, shifting foot gear and putting on the duffle jumper.

During my absence I saw no icebergs even from the peak.

There were a few isolated pieces of blue ice resembling the southern ice.

There seemed to be no material difference between the ice on the other side of Cape Joseph Henry and that on this side.

I think water and shifting floes may be expected off all the capes.

In conclusion, I beg to bring to your notice the excellent behaviour of the men under my command; being only two, the unenviable duties of cook came very frequently, and their desire to forward the objects of the expedition was very apparent. Frederick did his share very well, but like all Eskimos does not understand dog-sledging, except it be doing 30 miles a-day.

I have the honour to be, Sir,
Your obedient Servant,
P. ALDRICH.

Captain G. S. Nares,
October 8th, 1875.

Corrected heights of the Points and Peaks near Cape Joseph Henry.

Observation Peak, going up, 2,130 feet; coming down, 2,220 feet.
The cone, 1,030 feet.
Highest point of Joseph Henry, 1,800 feet.

COMMANDER MARKHAM. PROCEEDINGS, 16TH SEPTEMBER. ORDERS TO, 25TH SEPTEMBER. PROCEEDINGS, 18TH OCTOBER.

H.M.S. "Alert" (Winter Quarters),
September 16th, 1875.

Sir,

I have the honour to forward for your information, the result of my proceedings during my recent absence from the ship, on the service ordered by you. The following is an abstract from my journal.

Saturday, September 11th.

Left the ship at 12.30 p.m. with one 20 ft. and one 15 ft. ice boat, and 10 men with two eight-man sledges and paraphernalia for ditto. Light S.W. wind. Made sail. Plenty of open water extending from one to three and four miles from the shore. 2 p.m. lost sight of ship, and sighted from the top of a high hummock the land party under

Track Chart of Proceedings H.M. Dog Sledges „Alert" and „Challenger"

Away between Sept. 22nd and Oct. 5th 1875.

This Chart only shews from „the Boats" Northwards.

P. Aldrich.
Lieut

Lieutenant Parr and Sub-Lieutenant Egerton. 3 p.m., hauled boats up on the floe about 3½ miles from the shore, and about 9 miles from the ship. Packed one sledge with all sledging gear, and started shorewards. Weight on sledge, 1,300 lbs. From the point of landing the ice appeared to stretch across the bay to the opposite shore (Cape Joseph Henry), the water approaching no nearer to the land than from 4 to 6 or 7 miles. Along our route the hummocks were piled and squeezed up to a height of from 10 to 20 feet, making the travelling most difficult and irksome. On the level floes the snow was so deep that the men were frequently floundering in it up to their waists.

At 6 p.m., sighted Lieutenant Parr and his party coming towards me. Communicated at 7.15, and camped for the night on the floe, under the lee of some high hummocks about ¾ of a mile from the shore. Supper prepared about 10 p.m. Wind during the day S.W. from 2 to 4 b.c. Temperature of air, 14°; of tent at midnight, 18°; during supper, 31°. Lieutenant Parr had picked up, half buried in the snow, on a floe, a narwhal's horn, 5 feet 8 inches in length, conclusive proofs that these cetaceans frequent high northern latitudes. One seal (*Phoca fœtida*) and four guillemots, slightly different to the *Uria Brunnichii*, was all the animal life seen; the latter were not apparently making a passage. Hours in the boats, 2½. Packing sledge, ½. On the march, 4¼.

Sunday, September 12th.

Aroused the cooks at 6.30 a.m. Breakfast ready at 8. At 9 left encampment with the whole party, and the two eight-man sledges empty. Reached the boats at 10.15. Sun shining brightly; ordered snow spectacles to be worn. Men evince a decided aversion to them, as they make the eyes warm, and from the vapour forming on the glass render vision indistinct. The pack appeared the same distance from the land ice as it was yesterday, namely three-quarters of a mile, but the channel through which we had sailed was completely covered with new ice, made during the night, but of such a consistency that no boat could make progress through it, yet not sufficiently strong to sledge over, or even to bear a man's weight. Some of the floes on which we travelled were fully 45 feet in thickness, but not more than three hundred yards across in the broadest part, huge hummocks being piled up along their entire circuit, making the work of dragging extremely heavy and laborious.

Started with the boats at 10.30, and reached encampment at 1.15. Halted for lunch. Observed two people on the nearest range of hills, but were unable to identify them. Supposed them to be Dr. Moss and Mr. White. At 2.30 started again with the boats. 3 p.m., reached the shore. Met and communicated with Lieutenant Aldrich, and three dog sledges. Proceeded again at 3.15, sledging over some new ice, as level and as smooth as a bowling alley, making good progress, and travelling easy. 5 p.m., reached a long spit, the western extreme of a large bay, about 4½ miles from encampment. Hauled boats up, and returned to camp with empty sledges. Lieutenant Parr and myself proceeded about a mile and a half beyond, returning to camp at 8 p.m. Men complained bitterly of thirst, which they were unable to assuage, also of cramp in their legs, produced by the unusual exertions they had gone through on their return march over deep and heavy snow. Picked up a large piece of drift wood on a floe in the centre of the large bay, with portions of its bark adhering, which was brought on board. Wind light, from the S.E. Temperature in the air at 9 a.m., 7°; at noon 4°; at midnight, inside the tent, 14°; hours resting, 13¾; lunch, 1¼; marching, 9¼; estimated distance travelled during the day, 14 miles. Traces of lemmings observed.

Monday, September 13th.

Cooks called at 6.30. Breakfast ready at 8.30. Struck tents and packed sledges 9.30. Commenced the march. Fresh gale blowing from the S.S.W. Made and shortened sail on sledges, according as the leads enabled us to take advantage of the wind. 11, observed the two snow houses erected by Lieutenant Aldrich, that we omitted seeing yesterday. Passed them about a mile distant, and quite out of our track, as we were making for the spit. Reached the boats at noon, and transferred them to the sledges. The five-man sledge having broken down, all the uprights of one runner having carried away whilst the sledge was under sail, proceeded at 12.30 without them. Weight on sledges about 1,100 lbs. Wind increasing to a strong gale, I deemed it prudent to halt at 2.15 for lunch, having advanced the boats a little over two miles. Hauling the two boats together and banking up with snow, we pitched tents under the lee thus afforded, and prepared lunch. Mr. Egerton and party rejoined at 2.30.

At 4.30, the wind having slightly moderated, we pushed on with the boats for a mile and a half, leaving the three cooks behind, to build up a snow embankment to windward of our tents, to protect us from the cold cutting wind.

Turning the boats bottom up, well clear of the ice, and leaving all the provisions I could spare (list enclosed) as a depôt, retaining two days' rations to bring me back, I returned to camp at 9 p.m. The provisions are all placed under the smaller boat. The large boat has been bilged in two places, but the injury is not serious, and can easily be repaired with the aid of a sheet of lead. From the summit of an adjacent hill, about 500 feet above the level of the sea, I saw a large space of open water to seaward, but extending only about half-way to Cape Joseph Henry. The ice across the bay appeared very heavy, consisting of a mass of smooth blue topped hummocks. It would not, in my opinion, be difficult to take the boats across, but with the limited supply of provisions that I had with me, I had to give up all idea of proceeding further. Wind westerly, from 6 to 9 b.c.q.; temperature of air from 14° to 18°; temperature inside tent at midnight, 26°; hours resting, 13½; lunch, 2¼; marching, 8¼; estimated distance travelled during the day, 10 miles.

Tuesday, September 14th.

Aroused cooks at 5. Breakfast prepared by 7. Struck tents and packed sledges. Everything completely buried in drift, snow being piled half-way up the sides of the tents. Blowing a strong gale from the S.W. Took five-man sledge to pieces, and distributed gear and men to the two other sledges. Commenced the homeward march at 8.40. Temperature at 4 a.m., 24°; wind increasing. Passed the snow houses at 11.15, within about 400 yards, having altered my route slightly, did not stop to visit them. Travelling excessively heavy, snow in the drifts being very deep. Halted at 12.30, and pitched tents for lunch on the floe under the lee of a large iceberg. At 2.45, ice breaking up rapidly, struck tents and renewed the march. Gale blowing furiously. Men working well and cheerfully, but getting weary. After striking the tents at lunch time, a compulsory proceeding, in consequence of the disruption of the ice on which we were encamped, we passed no possible lee under which we could encamp. The snow-drift was so dense, that we were unable to see more than five or ten yards ahead. At 6 p.m., John Shirley, Stoker (one of my sledge party), fell down from sheer exhaustion, and had to be put on the sledge, which materially added to the weight, and necessarily lessened the motive power. Halted occasionally for rest, when the men would literally throw themselves down in the snow, endeavouring to seek rest and shelter under the lee of the sledges. At 6.30, deeming it absolutely necessary for the safety of Shirley that the tents should be pitched, I ordered a halt for the purpose of encamping. The wind was now blowing with terrific force, sending not only snow but pebbles and shingle into our faces, causing acute pain. Seeing that some time would be occupied in pitching our tents, in consequence of the furious blasts coming over the hills, and the invalid rapidly getting frozen and delirious, I determined upon lightening my sledge and pushing on to the ship, leaving Lieutenant Parr with the two other sledge parties who had fortunately suceeeded in pitching their tents. Administering a stimulant to my patient and making him as warm as circumstances would allow, I renewed the march, arriving on board this ship at 11 p.m., when I reported myself to you.

I cannot speak too highly of the admirable manner in which the men worked, and of the cheerful willing spirit displayed by them, under more than ordinary trying circumstances. I have also to thank Lieutenant Parr and Sub-Lieutenant Egerton for the assistance that they invariably rendered me. The enclosed chart showing my route has been executed by the last named officer, who has delineated, as faithfully as adverse circumstances, namely a gale of wind and a blinding snow drift, would admit, the trend of the coast line. The points and bays that we passed during our last three or four miles of march we were positively unable to see, therefore no angles could be taken.

Wind during the day, S.W., from 8 to 10 c.q.; temperature of air, 24°; hours resting, 11¾; lunch, 2¼; marching, about 13 hours; estimated distance travelled, 18 miles.

On all points of land the hummocks were piled up to an enormous height, fully 40 to 50 feet, resembling bergs, indicating great pressure from the northward.

In conclusion, I venture to submit the following remarks, derived from my late experience, regarding sledge travelling.

The clothing worn throughout by the party was the same as at starting, namely, duffle suits with canvas overalls, sealskin caps, and canvas travelling boots. During the day, when heated by exertion, the duffle jumpers were taken off, and the men worked in their canvas overalls. The majority of these canvas jumpers are made much too small, the men being unable to put them on over the duffle. Particular care was taken that dry feet wrappers, stockings and moccasins, were put on before retiring to their bags. The small skull caps are very comfortable, and are much appreciated. Regarding the

quality of the provisions, we found all excellent, but I would submit that an extra quarter, or even half of an ounce of sugar per man per diem should be allowed. It would not add materially to the weight, and would be much esteemed. The mid-day tea, if time can be devoted to make it, is a great boon, but the allowance of spirits of wine is not sufficient to cook it as well as the preserved beef, and it is impossible to eat the latter in a frozen state. It may suffice for a twelve-man party, but is ill proportioned for the eight and five-man sledge parties. When bacon is provided this difficulty is obviated. The allowance of stearine is ample, but as a general rule it requires from an hour and a half to two hours to prepare a meal. The allowance of tobacco is, in my opinion, more than sufficient, the men being unable to smoke whilst actually sledging, a large proportion (no less than a half in my party) not using this weed in any shape. I would also suggest that the smaller articles of the daily rations be packed in small duck bags, to be made by the captains of the sledges, containing one day's rations; this would entail no extra weight and would be of incalculable benefit when issuing the daily allowance of provisions.

Pepper and salt might also with advantage be put into small tins, made expressly for the purpose, thereby saving great waste. The water bottles are of little use, it being next to impossible to preserve the water in a liquid state. In attempting to draw the corks whilst frozen in, several of the necks of the bottles were broken off. The additional porch which by your orders was fitted to my tent, to be used as a kitchen, is an admirable contrivance, its extreme usefulness amply compensating for the very small increased weight to be carried. The window should be retained, as it facilitates the serving of the meals.

When a large party, that includes a five-man sledge, is travelling together, time must necessarily be lost by having to wait on each occasion of stoppage for meals for the smaller party, who are unable to procure water except in their kettle, the small cooking utensils not being fitted with snow condensers.

The sailing gear needs improvement, being slightly defective.

I have the honour to be, Sir,
Your obedient Servant,
A. H. MARKHAM,
Commander.

To Captain G. S. Nares, R.N. F.R.S.
H.M.S. "Alert."

No attempt was made to collect geological or botanical specimens, knowing as we did that our eminent naturalist had already traversed the same ground.

A. H. M.

Left at Depôt.

One 20 ft. ice boat, with gear complete; requires partial repair.
One 15 ft. ditto ditto.

Under the smaller boat, the following provisions are stowed:—

52 lbs. preserved beef, in 13 tins.
35 lbs. biscuit, in a bag.
2 lbs. 4 ozs. concentrated tea.
3 lbs. 4 ozs. chocolate.
2½ pints of rum.
1 bottle of onion powder.
Preserved potatoes, 40 men for two days, in two packets.
Tea and sugar (mixed), 20 men for four days, in four packets.
Sugar for tea, 40 men for two days, in two packets.

The boats are turned bottom up, and are well banked up with snow.

A. H. M.

H.M.S. "Alert" (Winter Quarters),
25th September, 1875.

MEMORANDUM.

With the object of advancing a depôt of provisions and two sledge boats to the westward to assist in exploring the coast next spring, you will take command of the three sledges named in the margin, provisioned for twenty days, and proceed to carry out that duty.

"Marco Polo,"
"Hercules,"
"Victoria."

Lieutenants A. A. C. Parr and W. H. May will accompany you.

I leave you to form your own arrangements, but should the weather or nature of the ice prevent the provisions and the boats being both conveyed to the westward of Cape

Joseph Henry, it will be better for you to carry on the provisions and to leave the boats to be pushed forward next spring.

You are to warn the officers under your command to be extremely careful in crossing bays; not to risk being driven off to sea by the ice breaking up inshore of them, and if possible you are always to encamp inshore of the coast hummocks.

As the officers and men are inexperienced in the work entailed on them in sledge travelling, you are to be careful not to overtax their powers or expose them to severe weather; one sick man may endanger the lives of all.

Lieutenant Aldrich has been ordered to ascertain the nature of the route around Cape Joseph Henry. If the road is impracticable for heavy sledges, he is to leave a notice in a conspicuous position on the coast south-eastward of it. You should therefore carefully examine the shore for his cairn.

I am not perfectly satisfied as to the safety of the position of the "Alert" during a strong N.E. gale. In the event of one occurring, you are to deposit your provisions and return to the ship immediately the weather permits you to do so.

Each party under your orders is to keep a sufficient quantity of provisions in reserve to last them during a gale of wind.

At "Depôt Point" there is a deposit of 356 lbs. of pemmican.

At "Snow Hut Point" there is a depôt fit for a small party only, this should be left for Lieutenant Aldrich.

You are to leave a notice at "Depôt Point" both in going and returning.

G. S. NARES.

Commander Albert H. Markham.

H.M.S. "Alert" (in Winter Quarters).

Sir, *October*, 18*th* 1875.

I have the honour of transmitting a report of my proceedings whilst engaged in carrying out the orders conveyed to me in your Memorandum of the 25th ultimo.

Saturday, September 25*th.*

"Marco Polo," "Victoria," "Hercules."

Left the ship with the three sledges named in the margin at 9 a.m. Venturing on the young ice, H.M. Sledge "Victoria" went through, and everything being completely saturated with water, she was, by your orders, sent back, and Lieutenant Parr desired to procure and rejoin me with an eight-man sledge.

Shortly after, my own sledge went through, whereby I lost 120 out of 140 pounds of biscuit, besides getting the tent and some of its furniture wetted. At 1 p.m. halted for lunch and pitched the tents. At 2·30, Lieutenant Parr with H.M. Sledge "Victoria" rejoined, having marched up well and quickly. At 6 p.m. halted and encamped for the night on the extreme western point of Ravine Bay. The travelling on the ice foot was good, but by keeping to the coast line it very materially increased the distance to be traversed. Where there was no ice foot the task of dragging our heavy sledges was very laborious. Young ice had formed on the several bays, but not of sufficient strength for us to avail ourselves of it for marching on. The hummocks were piled up on the various points as thick and as heavy as reported during my last journey. In consequence of the loss of biscuit sustained by my sledge going through the ice, I caused the allowance of biscuit on the other sledges to be reduced from 14 ozs. to 12 ozs. per man per diem; by which means they were each able to supply me with 20 lbs. of biscuit, and this with the 30 lbs. I obtained at the boats was sufficient.

Sunday, September 26*th.*

Struck tents and commenced the march at 7 a.m. Travelling comparatively good. The ice in Dumb Bell Bay had not broken out during the recent S.W. gales, and we marched over it easily. At 9 a.m. visited, accompanied by Lieutenant May, the snow house. Found the entrance completely blocked with snow, so left everything undisturbed. At 11 reached the boats and halted for lunch; boats nearly buried with snow drift. Lifted the smaller one and possessed ourselves of 30 lbs. of biscuit, leaving the remainder of the provisions intact. Observed numerous recent traces of ptarmigan on the tops of the hills, and also traces of musk oxen. Proceeded at 12.30, and shaped a course for Simmons Island. The floe on which we travelled consisted of a mass of round blue topped hummocks, as smooth as glass, making it difficult to maintain a footing. I am of opinion that this is permanent ice, formed in shallow water, but am at a loss to account

for the undulations on its surface. Reached the island at 2 p.m., the hummocks on its northern side were squeezed up to a height of from 40 to 50 feet, and of enormous bulk indicating great pressure from the N.E.

Dragged the sledges over the island, and shaped a course for a point on the opposite shore, the northern extreme of an extensive bay, which we reached at 4 p.m. The men showing signs of fatigue, the tents were pitched for the night, the hummocks along this point were not large, but were greatly discoloured, doubtless due to the dust being blown off the shore or to having been rolled over in the mud.

Monday, September 27th.

Commenced tne march at 8.30. Opened out a large bay, which from some very conspicuous cliffs on its northern side, was, for the sake of reference, named Black Cliffs Bay. The range round this bay is composed of a series of hills, both conical and tabular, varying in heights from 400 to 1,500 feet.

The cliffs, as their name indicates, are of a sombre hue, about 600 to 900 feet high, and present a most distorted appearance, the stratifications dipping both to the east and to the west, at angles varying from 5° to 15°.

The formation appears to be Silurian limestone, of a lamellated and slaty description. The bay is about four miles deep and three miles across. The head of the bay, at the entrance of which we encamped last night, runs up to a distance of about four miles, whence, from the conformation of the land, I am inclined to think that it terminates in another harbour, similar to Dumb Bell Bay. At 5 p.m. halted and encamped on the ice foot, inside a line of hummocks, about 1½ miles from Depôt Point, being stopped here by a lane of water about 20 feet in breadth. The travelling during the day was over young ice, so weak that the sledges had to be unpacked and dragged over with half loads; and again over old floes with heavy hummocks. In crossing the latter, all the uprights of one of the runners of the sledge "Victoria" carried away; this necessitated a slight delay until repaired. Several accidents occurred by the ice giving way, and many of the men received immersions in consequence. No time was lost in making them shift into dry clothing. Accompanied by Lieutenant Parr, I walked on to Depôt Point, and visited the cairn and depôt of pemmican established by Lieutenant Aldrich.

Diligent search was made for any record that might have been left there, but we failed to discover anything. Further progress for the sledges, *viâ* Depôt Point, was quite out of the question, several lanes of water of various breadths existing between the floes. One enormous floe was pressed against the point, squeezing and piling the hummocks up in a way I have never yet witnessed; this floe must have been quite eight or ten miles in breadth, and fully 50 or 60 feet in thickness. To the N.W. was what appeared to be a large lake or inlet, separated from the Black Cliffs Bay by a range about 150 feet high and about two miles across. To cross this piece of land appeared the only practicable way of proceeding.

Four hares were seen, and all shot by Lieutenant Parr. Traces of ptarmigan and lemmings were also observed.

Tuesday, September 28th.

Started in the morning with Lieutenant May to select a good route across the land for the sledges. Observed the tracks of Lieutenant Aldrich's dog-sledges, which very materially aided us in selecting a road. At nine struck tents and commenced the march. By a series of "portages," each man carrying his own individual load, we succeeded, after a hard day's work, in encamping at 6·45 P.M. on the southern shore of the lake, which was named Lake Victoria. It is nearly of a circular form, and we estimated it to be about six miles in circumference. A narrow winding ravine runs out from its N.E. end towards the sea, almost connecting it with the latter, but a few ridges of shingle across this ravine effectually preserve its laky character. A draught from the delicious water of this lake was much appreciated by all.

Wednesday, September 29th.

A heavy fall of snow during the night. 8.30 commenced the march. Dragging, on account of the soft snow, very heavy and laborious. Saw four ptarmigan in winter plumage. Passed through the ravine, and skirted along the shore of a large bay, named temporarily, Marco Polo Bay. Sledge crews had to be double banked on several occasions. Lanes of water making about a mile from the shore; pack moving slowly to the northward. Observed an old skull of a musk ox on a hummock, placed there by Lieutenant Aldrich on Saturday, September 25th. Appended a notice and left it in same position. At 2 P.M. struck across the bay amongst the hummocks, and pitched tents at 5.30 on the opposite side about two miles from the north extreme of the bay,

which was called Point Hercules. The bay is about 4 or 5 miles deep and 6 miles across. At its head is a deep ravine having a raised beach or embankment along its mouth, resembling the terminal moraine of an extinct glacier. The whole land was covered with an impervious mantle of snow, and snow was falling so heavily that only occasional glimpses of the land could be obtained.

Thursday, September 30th.

Started at 7.30 A.M. Still snowing; snow lying very deep; drifts almost impassable. Sledge runners completely buried. The system of travelling adopted was to make all hands drag one sledge on, and then return and bring up the other two. This was the only way of progression, but a very slow and tedious one. Off Point Hercules lanes of water were making within 50 yards of the shore, and the hummocks were piled up extremely high. At 5.15 halted and camped for the night on a large floe; the men exhibiting signs of fatigue. During the greater part of the day the travelling was performed on the ice foot. By ice foot, is meant a bank of frozen snow skirting the edge of the shore, and not the permanent fixed ice adhering to the land usually denominated the ice foot. The coast line appeared to be a succession of bays, some large, others small; off some of the points of these bays the hummocks were very massive, whilst others were quite denude of them.

Friday, October 1st.

Struck camp and marched at 7.45 A.M. Still snowing heavily; travelling across the floe a succession of "standing pulls." In the drifts the men would sink up to their waists in the soft snow. 1.30 P.M., sighted and communicated with Lieutenant Aldrich and his two dog-sledges; all well; halted and encamped for the night at 5 P.M. on the floe; weather too thick to take any bearings; the travelling was excessively toilsome all day. Men beginning to suffer a little rawness on their shoulders, caused by the incessant tugging and hauling on the drag-belts, although they are made to shift them constantly from one shoulder to another.

Saturday, October 2nd.

Heavy fall of snow during the night. Commenced the march at 7.45 A.M.; travelling fearfully heavy; snow over two feet deep, and in the drifts more than double that depth; men literally floundering through dragging their heavy loads. At 11.15 the sledge "Hercules" capsized going over a hummock, and carried away four uprights of one runner; halted on a low spit to repair damages and lunch; snow falling fast. Renewed the march at 12.30. Crossed a low plain, about 2 miles in width, covered with snow to a great depth, which agrees in description with Lieutenant Aldrich's snow valley. Halted at 3.30, and pitched tents for the night at the southern base of a conical hill. A heavy day's work, men rather fatigued and glad to make an early halt; walked on with Lieutenants Parr and May to the point, off which there was no ice foot, but a fringe of hummocks and a large pool of water, in which the pack was drifting rapidly to the northward. Conical hill sloped down to the water's edge at an incline of about 15°, and was covered with snow to a great depth; a fresh breeze blowing from the N.W., driving the snow drift before it, combined with the snow that was falling, in making the weather so thick and gloomy that we were unable to make any accurate observations.

Sunday, October 3rd.

Blowing a gale of wind from the northward, snow and drift so dense that it was impossible to proceed. The rest, however, was much needed and appreciated by the men. In the afternoon the wind subsiding, accompanied by Lieutenant May, I walked round the point, and through snow 5 feet in depth, round two other points about two miles from our encampment. The last one rounded we imagined to be the most eastern, and therefore Cape Joseph Henry, as from thence the land trended away to the W.N.W., appearing to be low, with an ice foot adhering. There was plenty of water to seaward, and the ice was moving to the northward. The floes were heavy, but the hummocks, although there has undoubtedly been a great squeeze off this point, were not piled up as high, or to such an extent as on other points we have passed. The weather being so thick and gloomy, I am rather diffident about hazarding any opinion regarding the transport of sledges round Cape Joseph Henry. As far as I went, and from what I observed, I see no difficulty in advancing, with a little trouble, during the spring; a slight detention is all I anticipate. Lieutenant Aldrich, however, who examined this part of the coast under much more favourable circumstances, is better able to report on the practicability of rounding the cape. Lieutenant Parr ascended Conical Hill and determined its height, by aneroid, to be 620 feet; the weather was too thick

for him to observe anything from its summit; he however found numerous traces of hares and ptarmigan, and in patches where the wind had blown the snow clear, vegetation was abundant, the willow predominating. Traces of musk oxen were likewise detected. Deeming it useless to attempt advancing the depôt any further, on account of the excessive depth of snow round Cape Joseph Henry, I determined on the morrow to retrace my steps and further the ultimate purposes of the expedition by advancing the boats, if possible, as far as Depôt Point. With this object in view, the depôt, consisting of 870 lbs. of pemmican, and 240 lbs. of bacon, was deposited on the top of a low ridge at the foot of Conical Hill; the tins being built up in the form of a cairn so as to render the depôt conspicuous.

Monday, October 4th.

Commenced the homeward march at 8.30; a fresh breeze from the N.W., and snowing hard; sledges drag considerably lighter since they have been relieved of the weight of the depôt, but the travelling is still fearfully heavy; the snow being half frozen, the men sink into it as deep as if it was soft, but, unlike in soft snow, they are unable to push their feet through, and are compelled to drag them out of the same holes they went in. Skirting along the shores of two large bays, but the weather too thick to make any observations; halted at five, and pitched tents on a large floe under the lee of some high hummocks.

Tuesday, October 5th.

A fresh N.W. wind and heavy snow. Commenced the march at 8.30, making nearly a due east course; travelling very heavy indeed. The recent wind instead of blowing the snow off the ice foot, has accumulated the snow from the surrounding hills and valleys on to the ice foot; at 4.45 halted and encamped for the night under the lee of Cape Hercules. Men thoroughly fatigued. Snow over our knees the whole day. The mode of travelling adopted was for the officers to walk in front so as to break a road in the snow, and for the crew of the leading sledge to be augmented by one hand from each of the other sledges, as on the leading sledge devolves the task of making the road. The leading sledge was also changed daily as well as the leading men on the drag ropes. In some places when the drift was very deep, all hands had to drag the sledges across singly. Our rate of progression was slow and tedious.

Wednesday, October 6th.

Blowing a fresh gale from the N.W., accompanied by snow. Commenced the march at 8.30; travelling worse than ever. Shovels had to be called into requisition to clear the snow away; water was making in large streams off Cape Hercules. One of the Eskimo dogs that had been abandoned by Lieutenant Aldrich joined our party, and hovered about at a distance of from four to five hundred yards, but nothing would induce her during the day to approach nearer. This dog remained near us until the day before we arrived on board, when she disappeared and was no more seen. At night she prowls about our tents, seeking what she may devour. At 1 P.M. struck across the floe in Marco Polo Bay. Halted at 4.45, and encamped for the night.

Thursday, October 7th.

Blowing furiously from the northward. Impossible to proceed. Wind subsided during the night.

Friday, October 8th.

The wind having abated, struck camp and renewed the march at 8 A.M. Snow still falling heavily. Travelling exceedingly irksome, the snow being from 3 to 4 feet in depth. Progress very slow. 3 P.M., reached the ravine leading into Lake Victoria. Found it impassable in consequence of deep snow-drift. Dragged the sledges over the brow of a hill, and encamped for the night at 6 P.M. at the southern end of the lake.

Saturday, October 9th.

A dull morning. Snow falling slightly. The snow was so deep on the land that by double banking the sledges we were enabled to drag them across the range to Black Cliffs Bay, in which were several lanes of water between the floes and *no ice* on which we could travel. Dragged the sledges up the side of a hill to an altitude of about 150 feet, and encamped for the night.

Many streams of water were seen off Depôt Point, the leads appearing almost identical with those observed on our outward journey. There being no ice foot by which we can advance, we shall be compelled to drag our sledges over the hills, and then endeavour to reach a large floe that extends to Simmons Island, apparently impinging on its western point. The temperature at noon to-day fell rapidly and suddenly from + 10° to −12°; and during the night to 15° below zero.

Several of the men were attacked by frost bite, principally in the big toes. Circulation was restored by the application of the warm hand, and the injured part was then dressed with glycerine ointment, in fact, the admirable and explicit instructions laid down for our guidance by Fleet Surgeon Colan were rigidly attended to. The cause of so many cases of frost bite to the feet is no doubt to be attributed to the damp and cold foot gear that was constantly worn. The temperature inside the tent was below zero, and everyone complained bitterly of cold.

Sunday, October 10th.

Immediately after breakfast, Lieutenant Parr and myself walked up the hill (which we named Frost Bite Range), to select a route for the sledges, whilst Lieutenant May went down to make a further examination of the state of the ice. Reporting unfavourably of the latter, the camp was struck and everything carried piecemeal to the summit of the hill, the height of which was ascertained by aneroid to be 250 feet.

Here the sledges were repacked, and being dragged along the crest for about a mile and a half, were eased down a steep descent on the other side, and we encamped for the night at 4 P.M., within about half a mile of the Black Cliffs. Fearing that my return to the ship might be somewhat protracted, the mid-day meal was abolished, and orders given for the bacon, hitherto used at that meal, to be substituted at breakfast for the pemmican; by these means the stearine used for cooking the pemmican in the morning and for making the tea at mid-day would be saved.

Monday, October 11th.

Struck tents and commenced the march at 8.15. Dragged the sledges through deep snow-drifts along the land, and then over some sludgy ice between high hummocks nearly abreast of the Black Cliffs, reaching at noon a large smooth floe, on which however the snow was lying very deep. After mature deliberation, I came to the conclusion that to ensure our return to the ship before our provisions were expended, this was the only available route. To have taken our sledges over the Black Cliffs (the only other alternative of proceeding, as we knew from previous experience that the cliffs were devoid of all ice foot, and the young ice was not of sufficient strength to support the weight of our sledges) would have been an endless, impracticable and hazardous proceeding. Encamped for the night at 4.15, about a mile to the westward of Simmons' Island.

Tuesday, October 12th.

Commenced the march at 8.30, and after much severe toil and labour encamped for the night, about half a mile from the boats, at 4.30 P.M. The travelling to-day has been entirely through deep snow-drifts and among heavy hummocks.

Wednesday, October 13th.

Commenced the march at 8.30. Reached the boats at 9.30. Examined the provisions left there, and found all correct. Took 20 lbs. of New Zealand beef, and left in exchange 90 lbs. of pemmican. The travelling getting a little easier. Reached Harley Spit at 2.30, and passed the snow house at 3.30. Encamped for the night about a mile from the snow house at 4.30. Saw numerous traces of hares. Lieutenant Parr saw and succeeded in shooting one.

Thursday, October 14th.

Commenced the march at 8. Crossed Ravine Bay during forenoon, where the travelling was again fearfully heavy. Temperature very low, fell to —22°. I would not in consequence allow the tents to be pitched for lunch, but kept the men constantly on the move while that meal was preparing. At 1.30, saw and communicated with Dr. Moss. 7 p.m., sighted the ship. 7.30, observed the officers and ship's company coming out to meet us, when I reported myself to you. Arrived on board at 9.15.

Appended is a tabular statement of the daily observations taken during our absence from the ship, by which it will be seen that snow fell on twelve consecutive days. Had we been more fortunate in our weather, we should have further aided our spring travelling by advancing the boats, at least to Depôt Point. I trust however that our exertions will meet with your approbation.

The enclosed chart, showing our outward and homeward tracks, is compiled by Lieutenant May, who was most assiduous in his endeavours to obtain a correct outline of the coast, losing no opportunity of taking angles and bearings to verify positions.

I did not leave a notice at Depôt Point on returning, according to your order, as to reach the cairn I should have had to travel fully four miles through very deep snow, and thus

cause great delay. Lieutenant Aldrich also assured me that he did not intend visiting the point. I trust this excuse will absolve me from deviating from your orders.

I have already enumerated what animals were seen, as also the traces; no others, with the exception of a seal (*Phoca fœtida*) off Depôt Point, were observed.

It was found a good plan for the men to wear their canvas jumpers only during the day, whereby the duffle jumpers were kept dry to put on at night. The spare travelling boots, so happily thought of, and sent on to us by you, were of the greatest service to us; without them we should have been in a sorry plight, as on one or two occasions after getting wet, the boots, with the stockings and foot wrappers, were frozen so hard to the feet, that they had to be cut off. The carpet boots supplied for the use of the cooks, answered the purpose for which they were intended for a few days, after which they froze so hard as to defy all efforts of getting into them. The majority of the duffle jumpers are too small, and when frozen are difficult to put on. A few had to be cut down the centre and worn as a coat. For low temperatures, such as we experienced on two or three occasions, the night clothing seems hardly sufficient, the cold being so intense as effectually to banish sleep. The duffle of which the jumpers and sleeping bags, and also the coverlets and lower robes are made of, does not keep out the cold to the extent that would be imagined from its composition. The water-proof floor cloths supplied are a total failure, and literally break in small pieces when frozen, in fact, after the first week it was impossible to open them out without cracking them.

It usually took from three hours to three hours and a half from the time the cooks were called in the morning until the march was commenced. They were generally aroused at 4.30 or 5 a.m. The sledge "Victoria" having retained their 12-man cooking apparatus, had a decided advantage over the other sledges, being able to cook a greater quantity in a far less time, and for the same amount of stearine.

The fearnought screen round the snow condenser is absolutely useless, as when frozen hard it is quite impossible to put it over the apparatus. I would suggest a light wire framework, by which they would be made to retain their shape, and be therefore rendered serviceable.

During autumn travelling, candles should form a part of the sledge equipment, the want of them was much felt. We were much indebted to the kindness and forethought of Captain Feilden, who supplied us on starting with a few small glass bottles in which to keep our matches, those in the wooden match boxes being totally unfit for use from the effects of dampness.

The provisions were all that could be desired, and the allowance ample, with the exception perhaps of salt, the allowance of which is barely sufficient. In the two sledges provided with the 8-man cooking apparatus, 100 lbs. of pemmican were saved out of 320 lbs.

With the 12-man cooking apparatus, when the whole allowance could be cooked, it was consumed. The sweet pemmican was on the whole preferred to the plain. For the spring travelling, when it may be reasonably expected that game will be procured, I think it would be advantageous to reduce the allowance of biscuit or pemmican by 1 oz. per man per diem, making up the equivalent weight in stearine and little condiments, such as currie powder, &c.

I cannot speak too highly of the mid-day tea, and strongly recommend that it should be generally adopted for all sledging parties. Unless the temperature was very low, thereby necessitating the men to keep constantly on the move to avoid frost-bite, tents were invariably pitched for the mid-day meal.

In consequence of the contraction of the iron from the extreme cold, the double barrelled guns were rendered useless, it being found impossible to force the cartridges into the chambers. It would have been better had the cartridges been supplied a size smaller.

Enclosed is a statement showing the weights of articles before starting and after our return, by which it will be seen how enormously the weights increased.

It was the practice for the officers to read Prayers every morning to their respective sledge crews before marching.

In conclusion, I would bring to your notice the hearty and zealous co-operation and assistance I received from Lieutenants Parr and May, and the cheerful willing manner in which the men conducted themselves during, to them, an unusually arduous time.

I have the honour to be, Sir, ...
Your most obedient Servant,
A. H. MARKHAM,
Commander

To Captain G. S. Nares, R.N., F.R.S.,
H.M.S. "Alert."

DAILY OBSERVATIONS.

Date.	Made Good.		Number of Miles Marched.	Hours Encamped for Lunch.	Number of Hours on the March.	Wind.	F.	Weather.	Temperature of Air.			Tem. inside Tent.	
	Course.	Distance.							9 A.M.	3 P.M.	8 P.M.	9 P.M.	6 A.M.
Sept 25 ..	N.W.	10	12	1½	6	Calm	0	o.	1	3	1	10	8
„ 26 ..	W.N.W.	11	13	1½	7½	Calm	0	b.c.f.	4	2	2	15	17
„ 27 ..	N.*b*.W.	4	11	2	7	Calm	0	b.c.	8	14	11	8	22
„ 28 ..	N.	2	12	1	9	S.W.	1	o.s.	8	2	6	14	18
„ 29	N.	8	11	1¼	7	S.W.	2	c.s.m.	7	3	10	15	15
„ 30 ..	N.N.W.	8	10	1½	8½	S.W.	1	o.s.m.	12	11	10	21	17
	..	..	..	..	..	North	3	..	..	..	..	..	..
Oct. 1 ..	N.*b*.W.	4	6½	1½	8	S.E.	2	o.s.	10	10	11	18	16
„ 2 ..	N.*b*.E.	5	7	1½	6½	N.W.	2 to 5	o.s.	10	9	10	19	15
„ 3 ..	Detained	by a	gale	of	wind	North	6 to 8	o.q.s.	11	10	10	18	20
„ 4 ..	S.*b*.W.	8	11	1½	7½	N.W.	5 to 7	o.q.s.	10	8	9	19	21
„ 5 ..	E.S.E.	6	9	1½	7	N.W.	4	o.s.	14	15	10	24	25
„ 6 ..	S.	6	8	1½	6½	N.W.	5 to 8	o.q.s.	15	14	12	22	20
„ 7 ..	Detained	by a	gale.	..	..	North	7 to 9	o.q.s.	15	14	11	22	23
„ 8 ..	S.S.E.	7	11	1¼	10¾	N.W.	2	o.q.s.	14	11	11	21	18
„ 9 ..	S.	3	6	1	7½	Calm	0	o.s.	8	10	15	2	0
„ 10 ..	W.	2	3	0	6¼	West	1	b.c.	8	3	10	19	20
„ 11 ..	E.S.E.	5	6	1	6¾	S.W.	1 to 4	c.s.	10	14	8	18	17
„ 12 ..	E.*b*.S.	5	6	1	7¼	S.W.	5 to 2	b.c.	9	7	10	19	10
„ 13 ..	E.	8	9	1	7¼	Calm	0	b.c.	9	7	11	7	5
„ 14 ..	E.S.E.	12	14	0	11½	Calm	0	b.c.	13	22	15	..	..

All Temperatures below zero are recorded in black figures.

Estimated Distance marched—
Outwards .. 82·5 miles.
Homewards .. 83 „

Hours Marching—
Outwards .. 59·5
Homewards .. 78·4

Max. Temp. of Air .. 15°
Min. „ „ .. 22°
Max. Temp. of Tent .. 25°
Min. „ „ .. 2°

Actual distance marched 165·5 miles.
Average number of miles marched per marching day, 9·2.

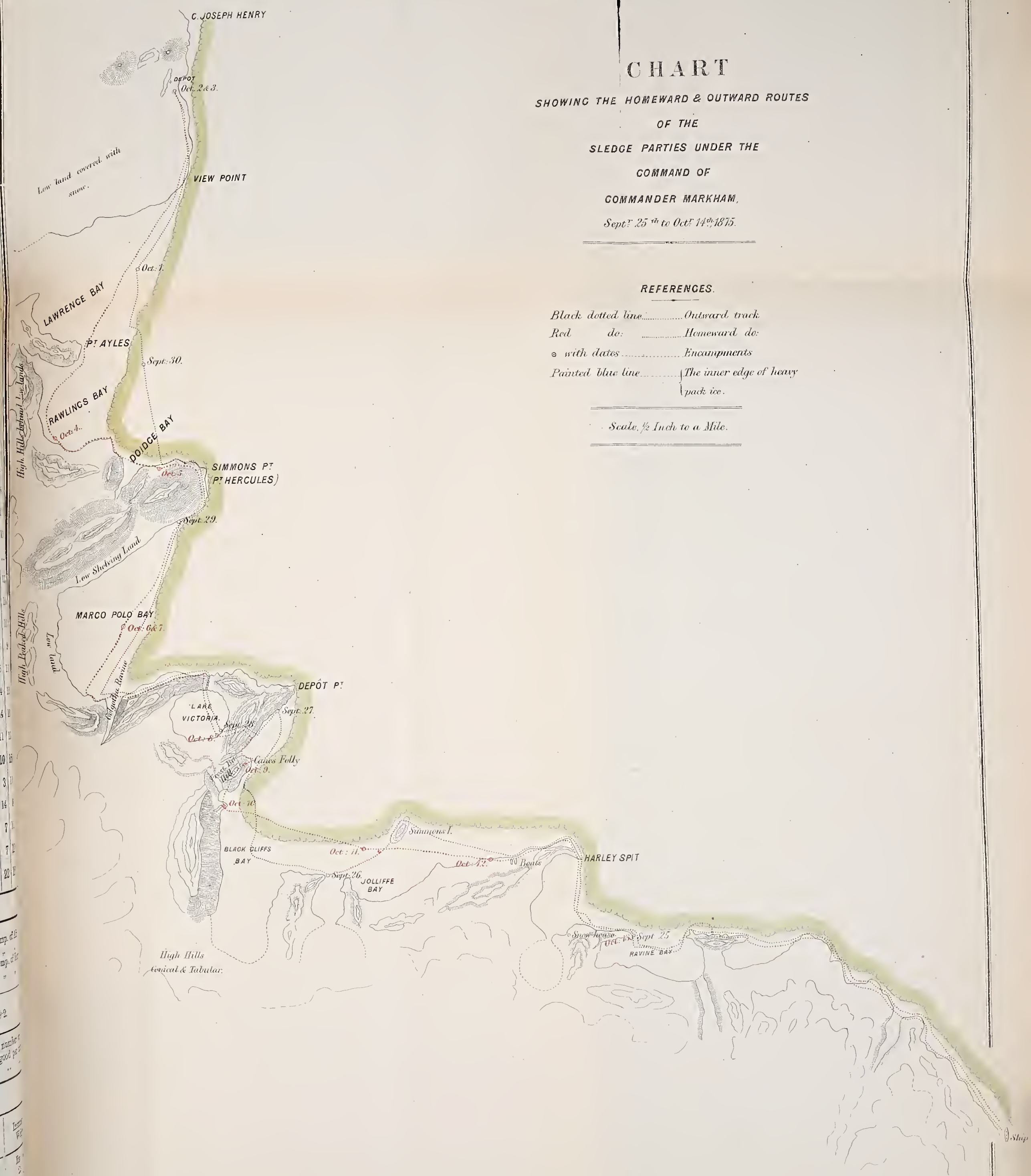
Distanee made good—
Outwards .. 52 miles.
Homewards .. 62 „

Actual distance made good .. 114 miles.

Average number of miles made good per marching day .. .. .. 6·2

Weights of Various Articles.

Description.	Before Starting.		On Return.	Increase of Weight.	
	lbs.	oz.	lbs.	lbs.	oz.
Tent	31	14	55	23	4
Sail	9	1	17	7	15
Coverlet	21		48	27	0
Lower robe	18	4	40	21	12
Floor cloth (water proof?)	11	4	29	17	12
Sleeping bag	8	2	17	8	14
Knapsack	7	4	10	2	12



CHART

SHOWING THE HOMEWARD & OUTWARD ROUTES

OF THE

SLEDGE PARTIES UNDER THE

COMMAND OF

COMMANDER MARKHAM,

Sept.r 25th to Oct.r 14th, 1875.

REFERENCES.

Black dotted line ..... *Outward track*
Red do: ..... *Homeward do:*
⊙ *with dates* ..... *Encampments*
Painted blue line ..... *The inner edge of heavy pack ice.*

Scale, ½ Inch to a Mile.

28 JAN

LIEUTENANT WYATT RAWSON. ORDERS TO. 2ND OCTOBER. REPORT, 14TH OCTOBER.

H.M.S. "Alert" (at Winter Quarters),
2nd October, 1875.

MEMORANDUM.

To Lieutenant Wyatt Rawson,

With a sledge equipped for fourteen days, you will proceed to Lincoln Bay, estimated to be 25 miles distant from our present position. The object of your journey is to ascertain the nature of the ice at the foot of the cliffs about Cape Union and south of Lincoln Bay, and what we may expect it to be late this season, and during the next spring and summer.

I wish you in rounding the cliffs to travel along the land ice as much as possible. But should you be perfectly sure that the pack will remain fast, and that you can return to the shore, you may proceed for a short distance on the outer ice.

At your extreme position to the southward you are to erect a conspicuous cairn and leave the accompanying papers in it, with an account of your movements.

In your advance you are not to proceed beyond any position which you could not pass in returning with a light sledge in the event of the inshore ice breaking up as it did during the last S.W. gale.

In the event of your meeting with a party from the "Discovery," you are to make yourself fully acquainted with the nature of the road they have journeyed over, with a view to your returning to that ship, if possible, during this autumn.

You are to be careful not to expose your men more than is necessary. The distance that you have to travel is not great, but the difficulties are considerable.

Any provisions that you may require are to be taken from the Lincoln Bay Depôt, a notice being left of the quantity taken.

I shall expect your return before the 16th instant, without your having found it necessary to disturb the depôt.

In addition to the fourteen days' provisions, you are provided with three days' allowance for use in case a gale of wind prevents your travelling.

In consequence of the late heavy fall of snow, I would recommend you not to encamp in too sheltered a position, where the snow-drift is most likely to collect.

G. S. NARES.

Papers to be placed in Cairn.

Letter to Captain Stephenson.
Contents of depôt at "Alert's" Winter Quarters.
" " Lincoln Bay.
Notice of position of "Alert's" Winter Quarters.
Chart of Coast of Robeson Channel and the shore of the Polar Sea.

H.M.S. "Alert" (Winter Quarters),
Lat. 82° 27′ N. Long. 61° 22′ W.,
Thursday, October 14th, 1875.

Sir,

In obedience to your orders, I have the honour to inform you that I left the ship on the 2nd October, with an 8-man sledge and seventeen days' provisions; and travelled along the ice inside the hummocks for the first 2 miles from the ship; we then had to take to the land and travel over the snow. At Cape Rawson we came to the hummocks piled close upon it, so we took the pemmican off the sledge, and then, with the aid of the tent poles as levers and all hands on the drag ropes, succeeded in getting the sledge on top of the hummocks and lowering her down on the other side; these hummocks continue for about three hundred yards, and we took over three hours getting over them, and it being late, I encamped a quarter of a mile the other side of them for the night.

Sunday, October 3rd.

Started at 8.45 A.M., and travelled along the land over the snow, which was from 18 inches to two feet deep; it being too hummocky to travel over the ice, here and there we came to some smooth pieces of ice, but it was sludgy and not strong enough to bear the sledge. We made about 3½ miles and encamped at 6 P.M., at Point 5 (on the chart). Along the whole of the land we had travelled over there were grounded hummocks, some piled on the low land and some about 30 or 40 yards from it; and outside these the ice was moving to the north or south with the change tides.

Monday, October 4th.

I left a two days' depôt for my return, and started at 7.15 A.M. The snow being about 2 feet deep, we had to carry half the gear on and then bring up the sledge.

About a quarter of a mile from Point 5 we came to the hummocks piled up on the steep land in much the same way as they were at Cape Rawson; we got over about half a mile of these hummocks, until we came to Point 6. At this point the hummocks became very small, not being more than 6 to 10 feet high, and piled in a single line for about 50 yards round the cape; there was deep snow between these hummocks and the land; the ice outside them and within 10 feet of the land was moving very rapidly with the tide, and as I saw that any pressure from the ice moving past outside would in all probability carry them away with it and leave the bare side of the cliff, and this being at about an angle of 35° to the horizon, I did not feel justified in taking the sledge over this point, so I went back and encamped at Point 5.

Tuesday, October 5th.

7.30 A.M., I started with three men for Cape Union, taking with us a pick-axe and coil of rope to enable us to get over the hummocks, and I left orders with the four remaining men to build a snow hut while we were away.

We found the hummocks piled up on the land from Point 6 to Point 7, where they ended with a very large one; and I consider it would take a good day to get from Point 5 to Point 7 with a sledge. From Point 7 to Point 11 the land is low near the water's edge, and the grounded hummocks are in some places on the land and along the remainder of the coast; between these two points they are from 20 to 100 yards from the shore, but the ice between them and the shore was very rough. We arrived at Point 11 at noon. I had nothing to guide me in making out which point was Cape Union, beyond the fact that it is the most eastern on the chart, and as the land to the southward of Point 11 bore S. $\frac{3}{4}$ W., I came to the conclusion that this must be it.

I built a conspicuous cairn about 40 feet above the sea level, and left a tin cylinder with your letter to Captain Stephenson; a small chart from the "Alert" to Cape Union, stating the nature of the travelling; two documents with the contents of the depôts in Lincoln Bay, and also at the "Alert's" Winter Quarters, and also two or three private letters from officers to the "Discovery."

Cape Union is about 12 miles from the "Alert," and I consider when the snow is hard enough to travel over, it might be done in a little under four days.

I could see the next two points, viz., 12 and 13, bearing from Cape Union S. $\frac{3}{4}$ W., and Point 13 being about 2 miles from Cape Union.

The land hummocks between these two points were as far as I could see, close to the land, but they were not, I think, piled up against it; and though it looked very rough, yet I think a sledge could have got to Point 13 from Cape Union in one day.

As it was snowing hard, and my men were rather tired, I did not think it advisable to go on past Cape Union, so we returned to camp; getting back about 5.30 P.M. Coming back we all suffered a good deal from thirst, as our water bottles froze even inside our jumpers.

When we got back I found that the men had not been able to complete the snow hut, as it had fallen in twice owing to the blocks which they had cut being of too soft snow.

Wednesday, October 6th.

We commenced building a snow hut at 9 A.M., but owing to our having to dig in different places to get blocks hard enough, we did not finish it till 5.30 P.M.

We made it 10 feet in diameter and about 6 to 7 feet high. We slept in it that night, but it was only large enough for seven of us to sleep abreast, so one man slept at our heads at right angles to the remainder. The temperature inside the hut was + 40° at 8 P.M., whilst outside, it was + 15°. We left the door open for ventilation, and a small hole in the roof.

Thursday, October 7th.

7.15 A.M., we started back for the ship leaving a depôt of eight days in the snow hut; having previously taken up our small depôt of two days which we had left on the 5th instant.

The snow was about three feet deep and we could only get on by standing pulls; we had made about a quarter of a mile in $2\frac{1}{2}$ hours, when the wind which had been getting up from the N.W. since we started, now came on to blow with a force of about

eight, and owing to the amount of snow which had fallen, the drift was so bad we could not see 30 feet before us, and once or twice the men had to keep their hands before their mouths to keep the fine snow out and allow them to breathe; so I determined on going back to the snow hut, where we arrived at noon, and having pitched the tent at the door of the hut for a kitchen, we remained there for the remainder of that day. It blew very hard all that afternoon and night from the N.W., and we could hear the ice outside grinding up against the shore hummocks. The snow dripped a great deal during the night, and the inside of the dome was very sludgy, and I was frightened the top might come in.

Friday, October 8th.

The wind had gone down this morning and was only blowing in squalls and snowing, so at 9 A.M., we started and as the snow was too deep to drag the sledge, we had to carry on the gear by loads, beating down a track for the sledge, and bringing that on afterwards. I saw from the depth of the snow that it would take me more than four days to reach the ship; so instead of leaving an eight days depôt in the snow hut, I only left four days taking the remaining four with me.

This depôt consists of—

Pemmican, 32 lbs.
Bacon, 12 lbs.
Biscuit, 28 lbs.
Potatoes, 4 lbs.
Stearine, 9 lbs.
Chocolate, 2 lbs.
Sugar for do., 1 lb.
Tea and Sugar, 2 lbs.
Tobacco (shag), 1 lb.
Wick, 1 fathom.

I left a record in a small empty tin match box.

In the afternoon the travelling was worse than in the forenoon, and the only way we could get on, was by making two men shovel a road for us, and as the snow was then four feet deep, they could shovel away the upper two feet of it, and the other men were then able to tramp down the remainder. We had to pass through some very heavy drifts, one or two of them being quite 10 feet deep.

I encamped at 6 P.M., and we had made this day a little over a mile. It was snowing all day, and the temperature was +14°. That night we found all our sleeping gear wet through owing to our having to carry it.

Saturday, October 9th.

It was a beautiful morning, and the thermometer was standing at — 10°. We commenced work at 9 A.M.; the men with the shovels clearing a road. One or two of the men complained of numbness of the feet, but by rubbing their feet well they escaped frost-bites.

I halted at 5.30 P.M., as the men seemed very done with carrying the gear, and also the standing pulls at the sledge. We made nearly three-quarters of a mile on this day.

Sunday, October 10th.

It blew rather hard this morning from the N.W., and a great deal of drift, which during the night filled our porch entirely. We had breakfast at 8 A.M., and as it was blowing between 6 and 8, and the thermometer was standing at — 3°, I thought it best, as your orders were not to expose my men too much, to keep to the tent till the wind fell. This it did at noon, and we were just going to start when it came on to blow again from the same quarter, so we again took to the tent. The wind again fell at 3 P.M., but as it was then late I decided on waiting till the next day. We could see some open water on this day outside the land hummocks, but could not trace it far.

Monday, October 11th.

Started at 7.15 A.M., and had to clear the way with shovels. The snow was harder to-day, but not hard enough to bear you, and this made travelling worse if anything than it was the day before. I tried travelling over the hummocks on this day, and for about a quarter of a mile I found it was easier to drag the sledge up over them separately than to cut a passage through the snow. We got some better travelling in the afternoon over some sludgy ice for about half a mile, and we reached the hummocks at point 1 at 5 P.M., where we encamped, having made this day a mile and a half.

There was a great deal of open water visible, extending from the land hummocks as far as we could see across Robeson Channel, and also as far down the coast as we could make out. The wind from the S.E. all this day about 1 to 5. We also saw the coast of Greenland.

Tuesday, October 12th.

It blew very hard all night and this morning from the S.E., with a force of 9 in the squalls. We had to have the cooking apparatus inside the tent before it would act at all. We started at 7.45 A.M., and I found the snow very deep between the hummocks, and at the end of them nearest the ship we had to lower the sledge over a perpendicular snow-drift about 18 or 20 feet high. We sighted the ship at 8.30 A.M., but owing to the snow being very heavy, and having to make standing pulls to within a mile of the ship when we came to the ice, we could not get on board till 5 P.M.

Remarks.

I found that on the day when the thermometer was — 10°, and also on the days when it was blowing hard, that the stearine was hardly sufficient, and once or twice we could not allow sufficient for cooking the tea at lunch. I also found that the fearnought round the condenser is not large enough after it has been frozen once or twice to allow of its going over the stove. I found that the duffle inside the lower robe and coverlet, owing to its not being secured inside to the canvas edges, works itself away from the edges to the centre and away from the two outside sleepers. The stops for securing the robes are of great use.

I found our waterproof sheet had frozen very hard, and when it was laid out cracked in two or three places.

I consider a small light handspike would be of great use for getting over the hummocks, both for levering up astern with, and also for taking the weight of the sledge whilst the men fleet.

All the food was very good, but I found we could eat on an average only 5 lbs. of pemmican a-day instead of 8 lbs. We did not eat our allowance of biscuit.

We had a good deal of trouble with the Bryant and May's matches, owing to the paper on the boxes becoming damp and rubbing off.

I found with the breech-loading fowling piece, that after putting in a cartridge, it was always necessary to scrape away the snow and ice from inside the breech with a knife before it would close. I found the sail of great use when we could set it, and I consider the strength of the sledge and runners to be something wonderful. I did not see a sign of any living animal whatever whilst away.

The strata at Cape Union were very curious; one portion coming up vertical and that on either side branching out from it. I brought back a specimen which I have given to Captain Feilden, as well as a small piece of flora.

Two of my men had diarrhœa for two or three days, and three had slight coughs. They were all very subject to cramp at night, but as a general rule they all enjoyed excellent health. They all worked very well and very cheerfully, especially Bryant, the captain of my sledge.

I have the honour to be, Sir,
Your obedient Servant,
WYATT RAWSON,
Lieutenant R.N.
H.M.S. "Discovery.

Captain G. S. Nares.

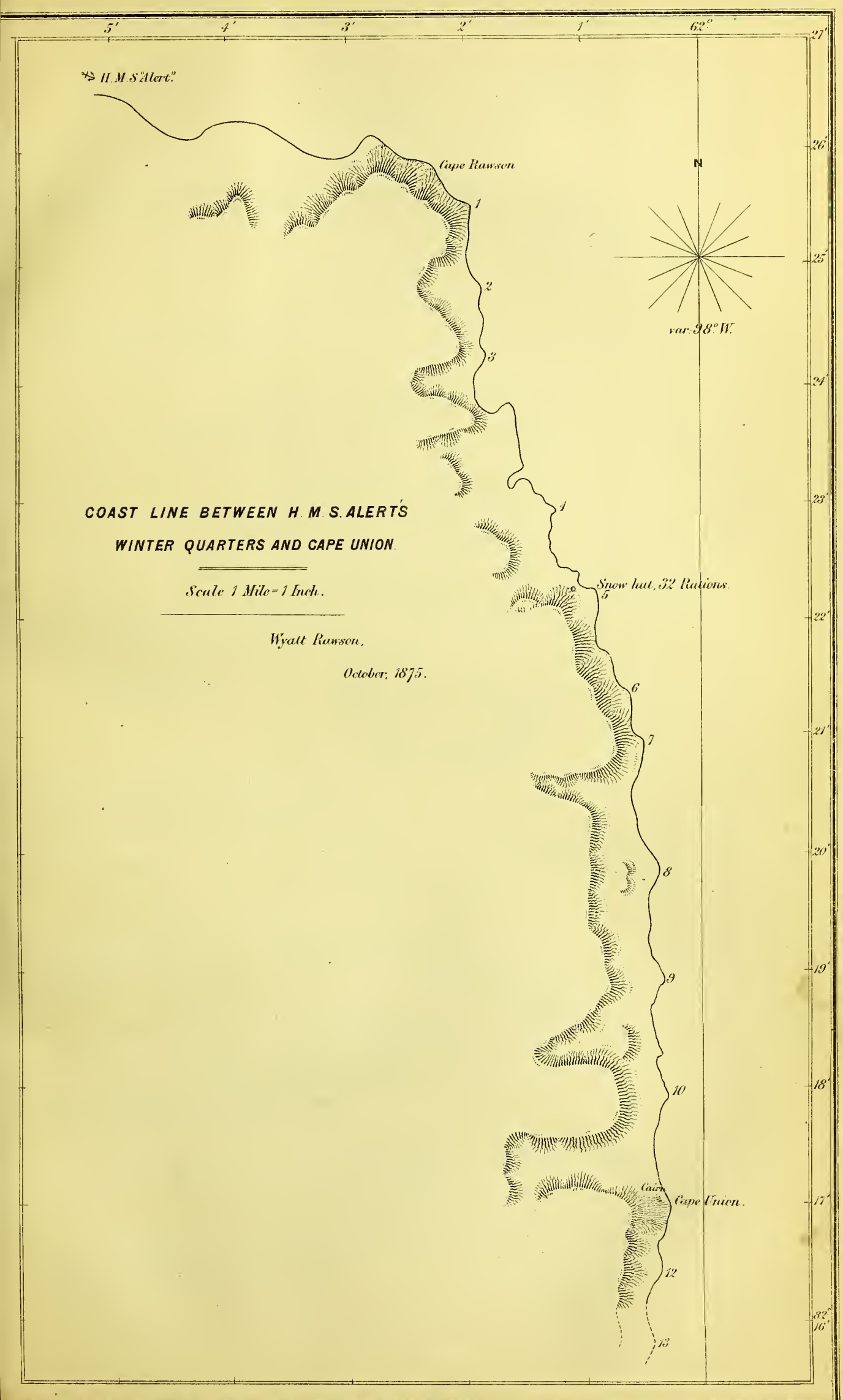
Saturday, October 2nd.

Course and distance made good, E.S.E., 3 miles.
Distance travelled, 4 miles.
Hours travelling, 9. Lunch, $\frac{1}{4}$ hour.
Wind, south, 1 to 2. Weather o.s.

		Air.	Tent.
Temperature	.. ..	2 P.M. + 16°	9 P.M. + 44°.
,,	.. ..	7 P.M. + 12°	11 P.M. + 39°.
,,	.. ..	10 P.M. + 13°.	

Sunday, October 3rd.

Course and distance, S.E., $2\frac{3}{4}$ miles. Distance travelled, $3\frac{1}{4}$ miles.
Hours travelling, $7\frac{3}{4}$. Lunch, $1\frac{3}{4}$ hours.
Wind, variable, 1. Weather, o.s.



Dangerfield, Lith. 22 Bedford St. Covent Garden

	Air.	Tent.
Temperature	9 A.M. + 26°	7 A.M. + 36°.
,, ...	1 P.M + 20°	9 P.M. + 42°.
,, ...	8 P.M. + 14°.	

Monday, October 4th.

Course and distance, nil. Distance travelled, 2½ miles.
Wind, N.W., 1 to 5. Weather o.s. Hours travelling, 7¼. Lunch, 1.

	Air.	Tent.
Temperature	10 A.M. + 14°	7 P.M. + 22°.
,, ...	6 P.M. + 8°	10 P.M. + 22°.

Tuesday, October 5th.

Wind, N.W., 3. Weather o.s.
Temperature, 8 A.M. + 15°.

Wednesday, October 6th.

Wind, N.W., 1 to 4. Weather, o.s. Building snow hut.
Temperature, noon + 15° 4 P.M. + 15.°
In snow hut, 8 P.M. + 40°.

Thursday, October 7th.

Detained by weather. Wind, N W., 1 to 8. Weather, o.s.
Temperature, air, 9 A.M. + 15°.
In snow hut, roof, + 45° : floor + 35°.

Friday, October 8th.

Course and distance, N.W.*b*.W., 1 mile. Travelled 1½ mile.
Hours travelling, 7½. Lunch, 1½ hour.
Wind, N.W., 1. Weather o.s.

	Air.	Tent
Temperature	10 A.M. — 10°	9 P.M. + 12°.
,, ...	4 P.M. — 8°.	
,, ...	8 P.M. — 2°.	

Saturday, October 9th.

Course and distance. N.W., ¾ mile.
Hours travelling, 8¼. Lunch, ¼ hour.
Wind, N.W., 1. Weather, o.s.

	Air.	Tent.
Temperature	10 A.M. — 10°	9 P.M. + 12°.
,, ...	4 P.M. — 8°.	
,, ...	8 P.M. — 4°.	

Sunday, October 10th

Detained by bad weather. Wind, N.W., 1 to 7.
Weather, b.

	Air.	Tent.
Temperature	9 A.M. — 2°	8 A.M. + 10.°

Monday, October 11th.

Course and distance, N.W.*b*.W., 1½ mile.
Hours travelling, 9. Lunch, ¼ hour.
Wind, S.E., 1 to 4. Weather, b.c.s.

	Air.	Tent.
Temperature	8 A.M. + 10°	8 P.M. + 35°.
,, ...	11 A.M. + 11°.	
,, ...	4 P.M. + 15°.	

Tuesday, October 12th.

Couase and distance, W.*b*. N., 3 miles.
Hours travelling, 9. Lunch, ¼ hour.
Wind, S.E., 1 to 9. Weather, b.

	Air.	Tent.
Temperature	7 A.M. + 13°	+ 18°.

W. R.

LIEUTENANT R. H. ARCHER. ORDERS TO, 4TH OCTOBER, REPORT, 12TH OCTOBER.

H.M.S. "Discovery," at Discovery Harbour.
4th October, 1875.

MEMO.

It is desirable to send a party for exploration up the Fiord, and through the valley known by the name of the Bellows, to determine where that ultimately ends, or in what direction it may lead.

I have decided upon sending you on this service with a five-man sledge, victualled for ten days, leaving the ship on Tuesday next, the 5th instant.

I wish, if possible (and the weather is clear) you to visit our "Old Bivouac," either on your way out or return journey, and from there ascending the hills which overlook Lady Franklin Sound, so as to inform me of the state of the ice in that direction.

Sub-Lieutenant Conybeare, with a five-man sledge, will accompany you on this service, and I have accordingly placed him under your orders.

This being the first sledging party despatched from this ship, I must impress upon you not to over-exert the men by long marches, until they get used to the work, paying particular attention to all the minute details incidental to sledge travelling, which adds so much to the comfort of all.

You will keep a strict daily record of your proceedings, according to the general form provided in the Sledge Book, and within a reasonable period of your return, presenting the same to me signed.

Being fully aware of your zeal, ability, and good judgment, I will not enter into further instructions; wishing your party health, fine weather, and a safe return, at the same time reminding you that all remarks on defects, or suggestions for improvement, that might in any way benefit future travellers, will be of great assistance.

H. F. STEPHENSON.
Captain.

To
Lieutenant R. H. Archer,
H.M.S. "Discovery."

H.M.S. "Discovery," at Discovery Harbour,
12th October, 1875.

Sir,

I have the honor to forward to you a journal of my proceedings from the 5th to the 11th instant.

I also enclose a list of the sledge crews.

I have the honour to be, Sir,
Your obedient servant,
ROBERT H. ARCHER,
Lieutenant.

To
Captain H. F. Stephenson,
H.M.S. "Discovery."

LIST OF SLEDGE CREWS.

FIRST SLEDGE.

Lieutenant Robert H. Archer.
Thomas Simmonds, Captain Forecastle (Captain of Sledge).
John Saggers, A.B.
John Hodges, A.B.
William Waller, Private R.M.L.I.

SECOND SLEDGE.

Sub-Lieutenant Crawford J. M. Conybeare.
David Stewart, Captain Foretop (Captain of Sledge.)
Daniel Girard, A.B.
James Thornback, A.B.
William R. Swect, Stoker.

Tuesday, 5th October.

Left the ship at 9 A.M. and proceeded along the north shore of Discovery Harbour. Stopped for lunch at 12.30 P.M. about 2 miles east of French Cape, and proceeded again at 1 P.M. Halted at 4 P.M. nearly opposite Cape Rest, on the middle of an old floe.

Temp. in tent + 22°. Outside + 10°.
Distance travelled, 13 miles. Hours on march, 6.
Resting, $\frac{1}{2}$ hour. Lunch, $\frac{1}{2}$ hour.

Wednesday, 6th October.

Temp. at 11 a.m. + 11°

Temp. in tent + 14°. Outside + 9°. Barometer, 29·92. Roused the cook at 5 A.M. Started on the march at 9. 9·30 stopped to put on overalls. Travelling fairly good till 10.20 A.M., when we reached the land; it then became heavy work. Noon, stopped for lunch under the lee of Cape Bleak. Took the following bearings from the Cape :—

Magnetic { Up the Bellows, 72°.
Black Rock Vale, $27\frac{3}{4}$°.
French Cape, 186°.

Proceeded at 12·30 P.M. up "the Bellows:" dragging still hard. Found the bottom of the valley to consist of ridges of shingle, with hard sand or frozen mud between, mixed with some substance very much like charcoal. The cliffs on each side nearly perpendicular, and about 1,000 feet high.

Temp.: 10.30 a.m. + 11°
Bar. 29·98.
Temp. + 11°
Bar. 29·90

At 3·30 P.M. halted for the night in a well sheltered hollow. Weather thick and snowy.

Since leaving Cape Bleak we have risen (by barometer) 110 feet. The distance from Cape Bleak to Bifurcation Cape I estimate at 4 miles. Found a small piece of drift wood about 2 feet long a short time before arriving at Cape Bleak. Temp. in tent + 31°. Outside + 12°. Calm, weather, o.c.s. Bar. 29·74. Made good, 7 miles. Five hours on the march. Resting, 1 hour. Lunch, $\frac{1}{2}$ hour. Putting on overalls, $\frac{1}{2}$ hour.

Bar. 2.30 p.m. 29·80

Bar. 29·78

Magnetic Bearings.

Left extreme, Bifurcation Cape	354°
Right ,, ,, ...	$5\frac{3}{4}$°
Up "the Bellows"	$75\frac{3}{4}$°
Cape Bleak, $3\frac{1}{2}$ miles	246°
Left Knife Edge	289°

Thursday, 7th October.

6 A.M. Called the cook. Temp. in tent + 28°. Outside + 15°. Bar. 29·82. Found the tent pocket half full of snow. I suggest, therefore, that a flap be fitted to close the pocket at the top.

Started marching at 8.35 A.M. Wind N.W. Weather o.c. The wind gradually increased, the thermometer rising with it. At 10.40 A.M. I left the sledges to continue their journey alone, and accompanied by Sub-Lieutenant Conybeare, walked to the top of a ridge, where we arrived soon after 11 A.M. We had a very fair view up the valley. It continued in the same direction for about 9 or 10 miles, when it apparently terminated abruptly, a hill stretching across it.

9 a.m. Ther. + 28°
Bar. 29·90

The weather, which had been thick in the morning, had now cleared a little, and I was able to take a round of bearings (magnetic).

Bar. 29·72

Left Knife Edge	$270\frac{3}{4}$°
Left Extreme, Bifurcation Cape	275°
Up the Bellows	83°
Last night's camp (about)	267°

At 12·30 P.M. I rejoined the sledges at the foot of the ridge; they had had some very heavy dragging. Stopped for lunch. At 12·35 P.M. proceeded along a chain of pools for a short distance; we then found the travelling become so heavy that it was with great difficulty both sledge crews could drag one sledge over the shingle. I decided to camp on one of the pools, and to walk on as far as possible the next day. At 2.15 Sub-Lieutenant Conybeare and myself, leaving the sledges, walked to a ridge about 2 miles off, which we reached in an hour, but little more was seen than from the first ridge. We came to the conclusion that the valley beyond this point was impracticable for sledges, but that a cart would answer very fairly, as the stones are smooth and make a very passable road. We found it easier to drag the sledges through a foot or eighteen inches of snow, than over a hard shingle surface.

Bar. 29·89

The wind was very variable all day, very fresh at times, driving much snow before it. The weather thick in the morning, but cleared up towards mid-day.

5·30 p.m. Wind S.E. 2. Wr. c.

Saw some traces of musk oxen and hares, found a skull of one of the former.

The valley here is about 1½ miles wide, bounded by cliffs on each side, nearly perpendicular.

Clothing worn in day time—guernseys, duffle trowsers, blanket wrappers, and canvas boots; overalls when snowing. At night we put on our duffle jumpers and moccasins.

Course N. 80° E. (mag.) Dist. 5 miles. Hours on the march, 4½. Lunch, 25 minutes. Rests. ½ hour. 7 P.M., Temp. outside + 15°. In tent + 28°. Bar. 29·88.

Friday, 8th October.

At 9·15 a.m.: Bar. 29·89

Called the cook at 6.30 A.M. Temp. outside + 18°. Inside + 32°. Bar. 29.89. Wind, N.N.W. 2. Weather, o.c.m.s. Started at 9.15 A.M., with Sub-Lieutenant Conybeare and David Stewart, Capt. F. Top, to walk up the valley. The weather was so thick that we could not see a mile ahead. We walked on till 1 P.M., when the weather being still as thick as ever, and seeing nothing of the end of the valley, the walking being also very laborious, on account of the uneven ground and deep snow, which was still falling fast, we were forced to turn back without getting to the end of the valley. We walked, I think, about 7½ miles from the tents, making a total distance of 15 miles up the valley. The character of the ground had altered considerably, we were now on broken earth, with a considerable amount of herbage, and little or no shingle. The cliffs were not nearly so high or precipitous, the top would be accessible in many places. The barometer showed a rise of 180 feet since the morning. We returned to the tents at 4.30 P.M. It had not ceased snowing all day.

Bar. 29·76
Bar. 29·65
Bar. 29·63
Ther. + 19
Wind S.E., 2
o. c. s.
Bar. 29.64

I took the men's temperatures this evening, with the following results:—

Lieut. Archer, 98°·7; T. Simmonds. 99°·2; John Saggers, 98°·5; J. Hodges, 97°·9; William Waller, 98°·4.

Ther. outside + 12°. Inside + 27°. Bar. at 6.30 P.M., 29·82. Wind S.E. 2., o.c.s.

Simmonds complained of a pain in his chest occasionally, particularly when moving about much.

Saturday, 9th October.

Called the cook at 6 A.M. Ther. outside + 9½°, in tent + 27°. Bar. 29·64. Calm o.c.s.

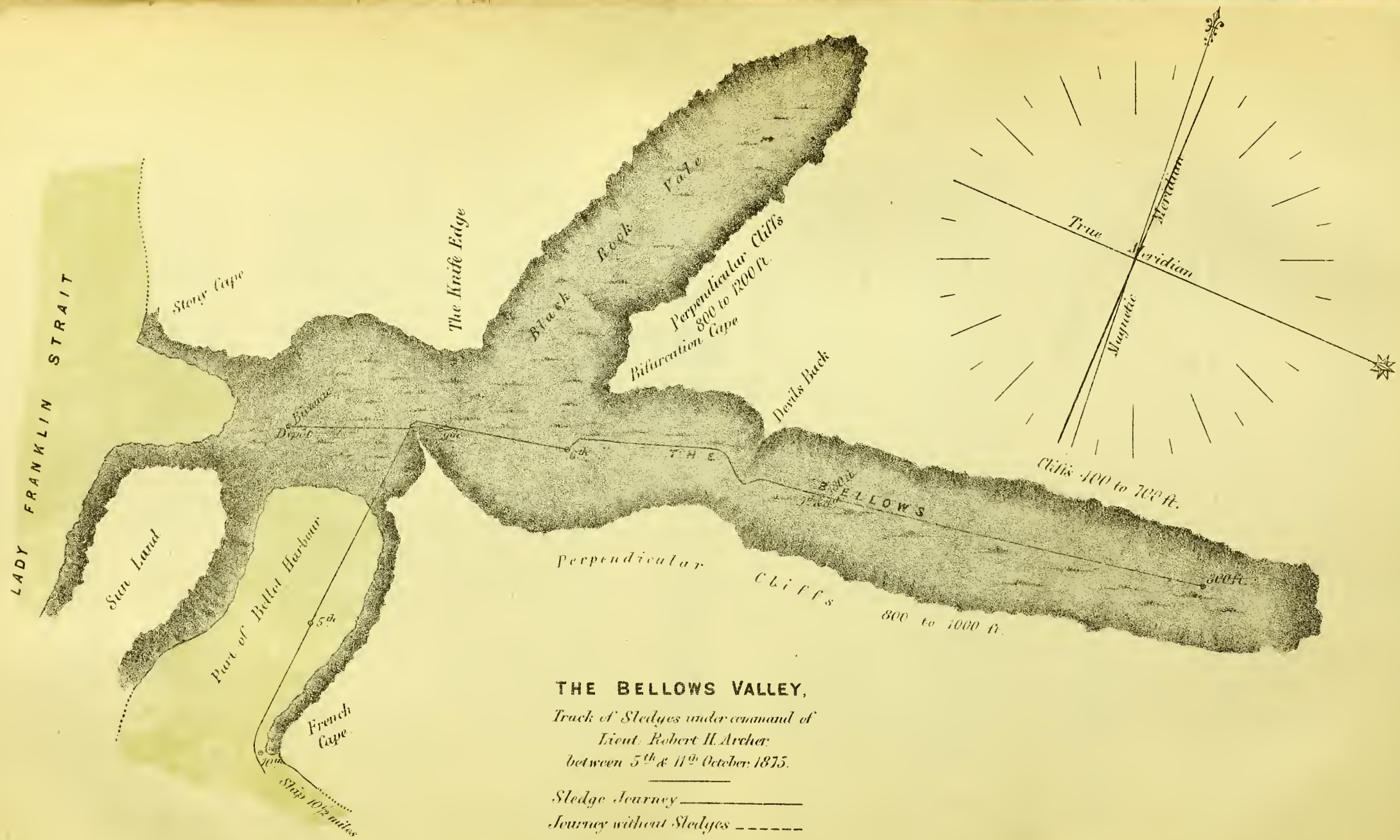
After breakfast we found that the ice underneath us had thawed, and made the lower robe quite wet on the under side, the water having penetrated the floor cloth. Started at 8.45 A.M. on the return journey, and endeavoured, but without success, to keep to our old tracks. Lunched at 12.25 P.M., and soon after we found a pool with water under the ice, which was very acceptable. We passed our second night's camp at 1.45. P.M., and after some very hard work through deep snow, reached Cape Bleak at 4.45 P.M. Hours on march, 6½. Lunch, ½ hour. Rests, 1 hour. Course magnetic, 260°. Dist. 8′. Ther. outside −5°, in tent + 14°. Bar. 29·52.

Bar. 29·63
Bar. 29·59
Bar. 29·58
Bar. 29.55

Sunday, 10th October.

Cook called at 6 A.M. Ther. outside −13°, in tent + 10°. The snow took a long time to thaw on account of the extreme cold, which at 8 A.M. was − 21°, and by Sub-Lieut. Conybeare's thermometer − 25°. At 8.45 A.M. I started with all the provisions, except one day's ration, for the Bivouac Hill, leaving Simmonds and Girard to pack up the tents and load the sledge. At 11.15 A.M. returned to the tents, having left in depot at "the Bivouac" the following provisions:—

Pemmican	40 rations	40 lbs.
Biscuit	40 ,, ...	35 ..
Bacon	40	15 ,,
Preserved Potatoes	40	5 ,,
Rum	.. ..	5 pints.
Chocolate	30 rations	30 oz.
Sugar for ditto	30	15 ,,
Stearine..	16	3 lbs.
Tobacco	40	20 oz.
Pepper	40	2 ,,
Onion Powder	40	5 ,,
Tea	40	10 ..
Sugar for ditto	40	30 ,,
Salt	about 40 ,,	



THE BELLOWS VALLEY,

Track of Sledges under command of Lieut. Robert H. Archer between 5th & 11th October 1875.

Sledge Journey ————

Journey without Sledges - - - - -

School of
26 AUG

I placed a list of the provisions left, in one of the bags, but unfortunately it is altogether incorrect. The depôt I placed exactly where the tent was formerly pitched.

I did not go to the top of the hill overlooking Lady Franklin Sound, as the whole was enveloped in mist.

We started from Cape Bleak at 11.40 A.M., with the tents, &c., and had some very hard dragging through the snow on the plain, which in places was nearly up to our knees. We arrived at French Cape at 4.50, where we pitched our tent for the night. $4\frac{3}{4}$ hours on the march. Lunch, $\frac{1}{4}$ hour. Securing depôt, $2\frac{1}{2}$ hours. Wind, N. 1, b.c. Course (mag.) 180°. Dist. 6 miles. Ther. – 18°

Monday, 11th October.

Called the cook 5.30 A.M. Ther. outside + 5°, inside + 22°. Simmonds complains that he cannot put on his boot on account of a pain in his left toe. On examination I found that he had a slight blister under the toe. I concluded he was frost-bitten yesterday, when packing up the sledge. As Sub-Lieutenant Conybeare reports Girard to be in the same state, and neither of them being able to walk, I decided to leave one sledge and the tents &c., here, and to take the two men on to the ship on the other sledge. I dressed Simmonds' toe in cotton with glycerine. Started at 8.20 A.M. Much sludge under the snow, making the walking difficult. Arrived on board at 2 P.M. Hours on the march, 5. Lunch, 10 min. Rests, $\frac{1}{2}$ hour.

I conclude with stating that although we have not actually reached the end of the valley, I do not think it continues further than we saw. The men marched about 55 miles, most of it being over heavy ground. Sub-Lieutenant Conybeare, Stewart, and myself walked about 15 miles besides, making altogether 68 miles travelled.

I have much pleasure in stating that the men behaved in a very creditable and cheerful manner, and gave me great satisfaction.

Owing to the clouded state of the sky I was unable to take any observations.

ROBERT H. ARCHER,
Lieutenant.

SUB-LIEUTENANT CRAWFORD CONYBEARE. ORDERS TO, 4TH OCTOBER. SLEDGE JOURNAL, 5TH TO 11TH OCTOBER.

H.M.S. "Discovery," at Discovery Harbour.

MEMO. *4th October*, 1875.

Considering it necessary to send a 5-man sledge up the Fiord to assist Lieutenant Archer in exploring the valley known as "The Bellows," and you having volunteered for this service, I desire you will place yourself in communication with that officer at once, receiving all further instructions on this service from him, and being in all respects ready to leave the ship on Tuesday morning next, the 5th instant, with the sledge "Endeavour."

I wish you to bear in mind, that although attached to Lieutenant Archer, and under his orders, I expect you to keep a strict daily record of your proceedings according to the form prescribed in the Sledge Book, presenting me with the same on your return.

Great attention is to be paid to the Sledge Routine, and in all the minute details, in which you have already gained some experience, and no doubt see the necessity of being rigidly enforced.

I wish you a pleasant journey and every success.

H. F. STEPHENSON,
Captain.

To Sub-Lieutenant Crawford Conybeare,
H.M.S. "Discovery."

H.M.S. "Discovery," at Discovery Harbour,

Sir, *Tuesday, 12th October*, 1875.

I have the honor to enclose my journal from the 5th to 11th October, when in command of H.M. Sledge "Endeavour," acting under the orders of Lieutenant R. Archer, R.N.

I also enclose a sketch of the end of the valley taken from a ridge twelve miles from the end.

I have the honor to be, Sir,
Your obedient servant,
CRAWFORD CONYBEARE,
Sub-Lieutenant R.N.

H.M. SLEDGE "ENDEAVOUR."

MOTTO—"*Usque Conabere.*"

LIST OF CREW.

David Stewart, Capt. Fore-top, Capt. of Sledge.
Daniel Girard, A.B.
James Thornback, A.B.
William R. Sweet, Stoker.

Tuesday, 5th October.

Left the ship at 9 A.M., cheered by the ship's company. Travelling pretty good, there being only a few inches of snow on the ice.

12.30. Stopped for lunch, Ther. 13°·5, calm c.

1.0. Proceeded; rounded "French" Cape at 2.15.

4 P.M. Stopped off Cape Rest, and pitched the tent on an old floe. Temp. in tent + 22°. Outside + 6°. Calm o.c. Distance travelled, 13 miles. Time on the march, 6 hrs. Time halted, 1 h. 0m.

Wednesday, 6th.

6 A.M. Called the cook Temp. in tent + 18°. Outside + 9°. West 1.2 o.c. 9.0. Started. 9.30. Halted 20m. to put on overalls.

Reached the land at 10.20, sledges dragging considerably heavier. Picked up a piece of drift wood (fir) about a mile from Cape Bleak. Noon, halted for lunch under the lee of Cape Bleak. The following bearings were taken from the Cape:—

Magnetic.

Up the Bellows	72°
Black Rock Vale	27¾°
French Cape	186°

Temp. + 11° N.E. 3, c.s.

12.30. Started up the Bellows. The valley commenced to rise very gently; and, after a short time, consisted of a series of terraced slopes, lying from 8 to 15 feet above one another, intersected by gorges running across the valley. There is an abundance of vegetation under the snow, grasses, mosses, &c. The prevailing direction of the wind seems to be down the valley.

4 P.M. Encamped in a deep gorge running across the valley. Rise of the valley since leaving Cape Bleak, 110 feet.

The following bearings were taken:—

Magnetic.

Left extreme, Bifurcation Cape	354°
Right extreme do.	5¾°
Up the Bellows	75¾°
Cape Bleak (3½ miles)	246°
Left Knife Edge	289°

Temp. in tent 20°. Outside, 12°. Calm o. c. s.

Distance travelled, 7½ miles. Time on the march, 5 hrs. Time halted, 1h. 30m.

Thursday, 7th October.

6 A.M. Called the cook. 8.35. Started. Temp., 21°. N.W. 1. At 9 A.M. we passed a ridge from 50 to 100 feet high, running up and down the centre of the valley. A fresh breeze sprang up from the N.W., driving the snow before it. Halted 10m. to put on overalls. At 11.5 Lieut. Archer and I left the sledges, and ascended a ridge 140 feet high, which ran nearly across the valley. When we reached the top, we saw the termination of the valley, about 12 miles from us. The mountains on either side decrease in height, and the bed of the valley narrows. I found the bone of a musk ox just before coming to the ridge.

The following bearings were taken:—

Magnetic.

Left Knife Edge	270¾°
Left extreme, Bifurcation Cape ..	275°
Up the Bellows	83°
Last camp	267°

26 NOV 1952

Dangerfield Lith 22 Bedford St Covent Garden

VIEW UP THE BELLOWS FROM THE DEVILS BACK, LOOKING NORTH.

Noon, halted for lunch at the foot of the ridge. 12.30. Started; found a lead of frozen pools, along which the sledges came very easily. After 30m. the lead ended, and we had to drag the sledges over the shingle by double manning them. At last they went so heavily that further progress was impossible, so we encamped on a frozen pool at 2 P.M. The valley appears like the bed of a large river, composed of shingle, mud, and small frozen pools here and there. Lieut. Archer and I walked ahead two miles, but did not see as much as we had done at noon.

Temp. in tent, 25°. Outside, 11°. N.E. 1. 2 c.

Distance travelled, 5 miles. Time on the march, 4h. 40m. Time halted, 1h. 0m.

Dan. Girard, A.B., constipation. Two pills.

Friday, 8th.

6·30 A.M. Called the cook. Temp. 16°. South 2, c.s. 9·15. Left the tent with Lieut. Archer and Stewart to walk up the valley; the weather was unfortunately very thick and snowing slightly.

After leaving the tent, the valley commenced to rise slightly; shingly bed but no mud. After walking 3 miles we came to a spur extending across the valley. After leaving it behind us, the valley began to contract and the mountains got lower. Towards the end the valley changes its character, ending in a grassy plain, it had risen 250 feet since we left the tent. At 1 P.M., after having walked 7½ miles, and the weather still remaining thick, Lieut. Archer decided on returning to the tents, which we reached at 4.30 P.M.

The ground over which we had walked during the day would have been impracticable for a sledge.

8 P.M. Temp. in tent, 29°, outside, 6°. S.E. 2, o.s.

The top of the tent thawed but did not drip.

Took the clinical temperatures of the men, with the following results:—

Mr. Conybeare	98°·8
David Stewart, Captain of Sledge ..	98·6
Dan. Girard, A.B.	98·8
Jas. Thornback, A.B.	97·8
Wm. Sweet, Stoker	98·4

Saturday, 9th.

6 A.M. Called the cook; found that his sleeping bag was wet through. After clearing out the bags, &c., the lower robe was found to be wet through, the water having come through the waterproof cloth. The ice underneath the waterproof cloth was thawed. Temp. in tent, 7 A.M., 25°, outside, 8°, calm c.s.

8.40. Started, very thick with light snow falling. The travelling was good till we reached the ridge, and then it became very heavy, owing to recent fall of snow.

12.30. Halted for lunch near Bifurcation Cape. Temp. + 8°, calm c.s. 1.0. Started, breeze sprang up from the southward, and it got much colder.

The sealskin caps got very wet from perspiration, greatly increasing their weight, and then froze.

The work was very hard, both sledges burying themselves in the snow.

5.0. Reached Cape Bleak. Found that the waterproof cloth had cracked in several places where it had been folded.

7 P.M. Temp. in tent + 8°, outside — 12°. Southerly 2, b.c.

Distance travelled, 8 miles. Time on march, 6h. 30m. Time halted, 1h. 30m. At 8 P.M. the temp. inside the tent fell to + 3°.

Sunday, 10th.

6 A.M. Called the cook. 7 A.M. South-easterly 1, c.m. Temp. in tent + 3°, outside — 13°.

At 8 A.M., temp. outside — 25°.

8·45. Started with my sledge to lay out a depôt at Bivouac Hill, leaving Simmonds, Capt. of Lieut. Archer's sledge, and Girard to strike the tents, &c.

The depôt consisted of:—

Pemmican	40 rations,	40 lbs.
Biscuit	40 „	35 „
Bacon..	40 „	15 „
Preserved Potatoes	40 „	5 „

Rum	} 5 pints 1 gill.	
Rum, in lieu of spirits of wine		
Chocolate	30 rations	30 oz.
Sugar for ditto	30 ,,	15 ,,
Stearine	16 ,,	3 lbs.
Tobacco	40 ,,	20 oz.
Pepper	40 ,,	2 ,,
Onion powder	40 ,,	5 ,,
Tea and sugar (mixed) ..	30 ,,	30 ,,
Salt	about 40 ,,	

Returned to Cape Bleak at 11.0 A.M. Packed the sledges and started at 11.45. 1.0. Halted 15m. for lunch, about 300 yards from the ice. The travelling over the plain very bad, the snow nearly reaching to the knees. Reached the ice at 1.40, snow very deep. When near French Cape the ice under the snow became very sludgy. Encamped at French Cape at 5.0 P.M.; temp. – 3°. W.S.W. 1. 2 b.c.; dist. travelled, 6m.; depôt 4m., time travelling, 4h. 45m.; securing depôt, 2h. 30m.; time halted, 0h. 45m.

Girard complained of pain in left big toe. Found the toe hard, nearly insensible to feeling, and a blister near the nail. Applied glycerine, and packed the toe in cotton wool.

Monday, 11th.

5.30. Called the cook. 7.30. Struck the tents, and placed them with the gear on Lieut. Archer's sledge. 8.10. Started with H.M. Sledge "Endeavour," with Girard and Simmonds (Capt. Lieut. Archer's sledge) toe also frost bitten. The snow was from 9 to 12 inches deep, with an inch of sludge underneath. 11.45. Halted 10m. for lunch, and reached the ship at 2 P.M.

I have much pleasure in stating that the conduct of the men under my command during the whole time has been all I could possibly desire, especially that of David Stewart, the captain of the sledge.

CRAWFORD CONYBEARE,
Sub-Lieut. R.N.

MEMORANDUM OF CAPTAIN H. F. STEPHENSON, 20TH OCTOBER.

H.M.S. "Discovery," at Discovery Harbour,
20th October, 1875.

Finding it quite impossible to despatch any autumn sledge parties for the purpose of exploring or laying out depôts to the northward on the west coast of Robeson Channel, or to the westward down Lady Franklin Sound, owing to there being so much water in both those channels, I determined on attempting an overland journey from the ship with sledges, striking the coast of Robeson Channel, to ascertain the possibility of travelling either along the coast line or ice foot.

The accompanying report of Lieut. Fulford, who formed one of my party, explains the nature of the country over which we travelled; the impossibility of penetrating any distance, and both sledges giving way, compelled our return to the ship after two days' absence.

Lieut. Beaumont's attempt with a cart, with the same object in view, his able remarks on the difficulties attendant on such a journey over so difficult and mountainous a country, which was then deep with snow, the thermometer being so low, the probable results so small, I consider he showed a wise discretion in returning to the ship the following day.

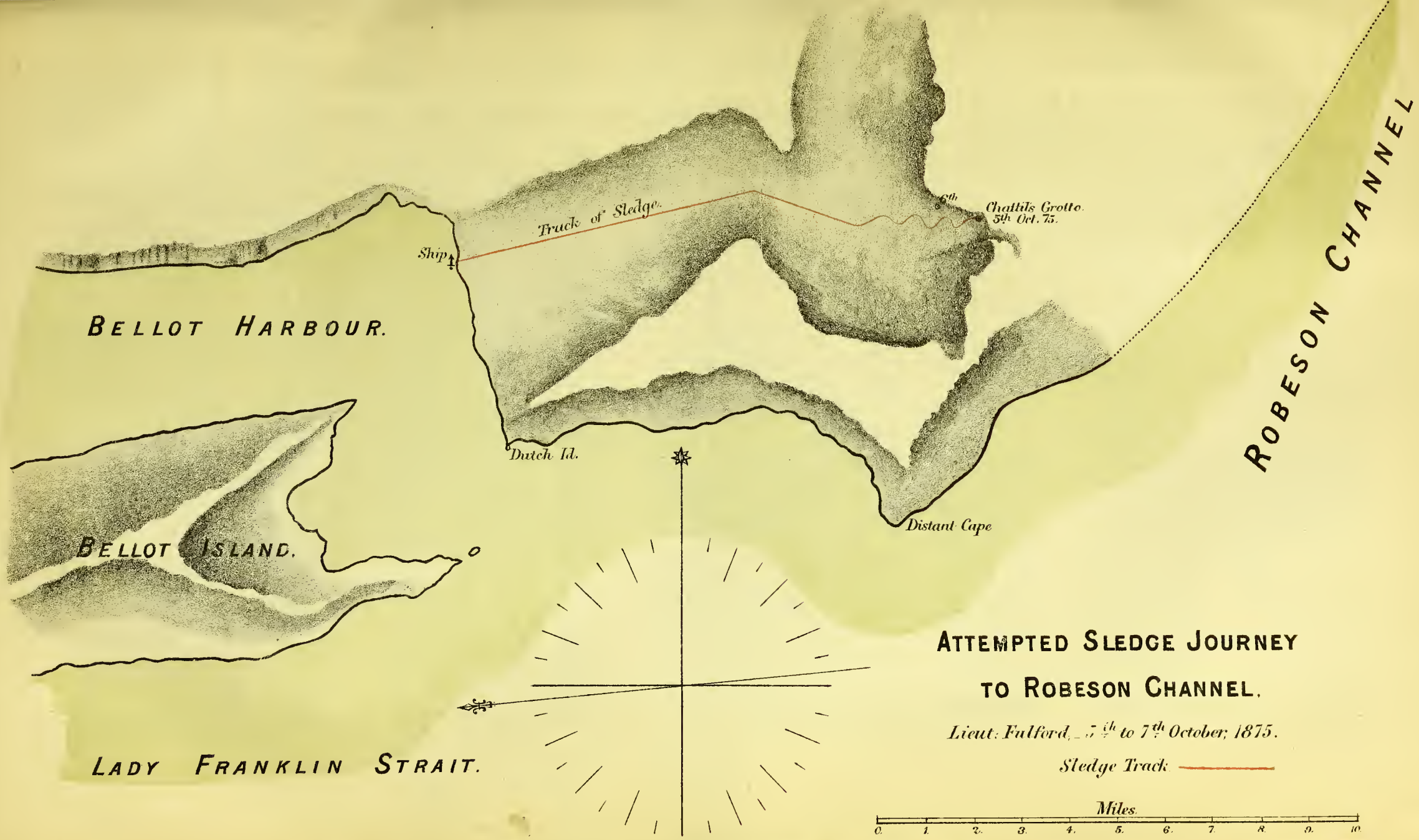
H. F. STEPHENSON,
Captain.

LIEUTENANT REGINALD B. FULFORD. REPORT OF PROCEEDINGS, 7TH OCTOBER.

H.M.S. "Discovery," at Discovery Harbour,
7th October, 1875.

Sir,

In obedience to your verbal orders, I accompanied your party named below, with an 8-man sledge, nine dogs, and provisions for ten days, total weight being 800 lbs., overland for the west coast of Robeson Channel.



ATTEMPTED SLEDGE JOURNEY TO ROBESON CHANNEL.

Lieut: Fulford, 5th to 7th October, 1875.

Sledge Track ——

Dangerfield Lith 22 Bedford St Covent Garden

London School of Economics
LIBRARY
2 CAMPS

H. F. Stephenson	.. ..	Captain.
R. B. Fulford ..	.. ..	Lieutenant.
Belgrave Ninnis	.. ..	Staff-Surgeon.
Henry C. Hart	.. ..	Naturalist.
Frank Chatel ..	.. ..	Captain Forecastle.
John Murray ..	.. ..	Private R.M.
Henry Petty ..	.. ..	Private R.M.
Hans ..	.. .. ..	Esquimaux.

Starting at 9.15 A.M. on the 5th instant up the valley to the S. by W. (mag.) of the ship. Having travelled about three-quarters of a mile from the ship, and finding the dogs were unable to draw the sledge, it was exchanged for two 5-man sledges, the "Sir Leopold" and the "Faith," the weights divided between the two, the dogs, being increased by one, were also divided.

Proceeded again at 10 A.M. The sledges were very heavy to drag, on account of the depth of the soft snow and rough ground.

At 12.40 halted for lunch.

1.5 P.M. Sighted Robeson Channel between the hills bearing south (mag.), weather thick, but observed patches of open water. You then directed me to proceed with the sledges to the coast, starting on yourself with Dr. Ninnis and Mr. Hart for the high land in front of us. I shortly afterwards entered a narrow and tortuous defile with precipitous cliffs on either side, once the bed of a river, but now frozen hard with deep snow.

3.30 P.M. Halted in a grotto (tunnelled watercourse through a hill) which prevented further progress with the sledge. The grotto consisted of two caves, the exterior of which was about 20 to 25 feet high, 20 feet long, and 15 feet broad, with a small hole in the further end from the entrance and about 20 feet up; I climbed to the top of the obstruction, consisting of frozen snow drift and ice, and found the gorge continued in the same winding manner as the previous $\frac{3}{4}$ of a mile, full of large rocks, numerous snow drifts, and precipitous cliffs on each side. The interior cave, which was entered by two small apertures on either side of the lower part of the obstruction to the first cave, was about 50 feet long, 8 feet broad, and from 5 to 20 feet high, and was nearly all incrusted with snow and ice. I imagine this was formed by a river boring through the rocks, all the bottom being thick ice. The estimated height of this grotto (named by you Chatel's Grotto) was 300 feet above the level of the sea. We encamped in the outer cave for the night.

Made good E. $\frac{1}{2}$ N. (true) 5·75 miles. Bar. 29·68. Ther. inside +29° Ther. outside +10° Calm.

Wednesday, 6th October.

9 A.M. Left Chatel's Grotto, men in duck overalls with duffle trowsers underneath, (the duffle jumpers carried on the sledge) Welsh wigs, boot hose, feet wrappers, and canvas boots.

Ther. inside during night + 32° to + 21°, Outside + 7°. Wind N.N.W. 2. o. s.

10 A.M. The sledge "Sir Leopold" broke down at the entrance of the gorge, the left stiles having carried away. Sent Hans with it and eight dogs to the ship, pitched the tent $\frac{3}{4}$ of a mile N. by E. (mag.) of the entrance to the grotto.

The officers explored the long valley running W. by N. (mag.) from the tent, and found it was utterly impracticable to proceed with sledges in that direction by reason of the deep snow and large and numerous rocks; also unable to proceed to the south or east (mag.) by reason of the high and precipitous hills and deep gorge. 2 P.M. Dined. Hans returned with another 5-man sledge.

6 p.m. temp. inside + 28°, outside + 10° Bar. 29·85 o.s.

Thursday, 7th October.

9 A.M. Left encampment and proceeded towards the ship; ground very heavy, with deep snow, and weather thick and snowing hard. 11.15. Sledge "Faith" broke down, right stiles having carried away; lashed the runner, and arrived on board at noon.

I beg leave to offer the following observations as regards sledging for your consideration. The country travelled over was, I consider, very heavy and hilly, and the valleys so full of large rocks and so much snow as made travelling very hard work. The depth of snow, the first day, was 7 inches of soft snow, underneath which was about 6 inches of crusted snow, which always gave way with the weights. The next day about 8 inches of soft snow, and on the following day 9 inches. There were, however, numerous snow drifts, and the ground being so uneven, made it hard to judge the depth of the snow. I further consider overland travelling at present is utterly impracticable while the snow is soft.

As regards cooking, we found the rum to be inferior to spirits of wine for that purpose. Two studs in the centre of the stearine apparatus to keep the wick upright would be an improvement.

I beg to enclose a small plan of the journey.

I have the honor to be,
Sir,
Your obedient servant,
REGINALD B FULFORD,
Lieutenant.

Captain H. F. Stephenson.

LIEUTENANT LEWIS A. BEAUMONT. ORDERS TO, 11TH OCTOBER, REPORT, 14TH OCTOBER.

H.M.S. "Discovery," at Discovery Harbour,
11th October, 1875.

MEMO.

The season being so far advanced, with very little prospect of autumn sledging, in consequence of the ice in Robeson Channel and Lady Franklin Sound being in an unfit state for either boat or sledge travelling, and having consulted with you, and you having expressed a wish to attempt a journey overland to the coast, through the extensive valley to the north, by means of a cart, I desire you will proceed on Tuesday next, the 12th instant, with Dr. Coppinger, and 5 men victualled for 8 days.

I am fully aware of the great difficulties and insurmountable obstacles that are incidental in crossing so mountainous a country; but the fact of your reaching some point, where you can determine the direction of the valley that is known to run for some considerable distance into the interior, as well as your obtaining a view of the state of the ice, and the possibility of crossing Robeson Channel to the northward, will increase our knowledge of the locality, and add much to the general information.

In attempting a journey of this sort, I wish you particularly to bear in mind the objects and results that are likely to be obtained, and that unnecessarily long distances should not be attempted with men who have had no experience of travelling in these regions, and in the special hard work that is before them.

You will keep a daily record of your proceedings according to the form provided in the Sledge Book ; all possible notes, heights of mountains, &c., will be of much value

I. desire you will leave a record in a cairn at your furthest from the ship, merely stating the date, and by whom deposited.

Having full confidence in your ability and judgment, I will add my sincere wishes for your success, and that health and fine weather may attend you on this most trying service.

H. F. STEPHENSON, *Captain.*

To

Lieutenant Lewis A. Beaumont,
H.M.S. "Discovery."

H.M.S. "Discovery," at Discovery Harbour,
14th October, 1875.

Sir,

In compliance with your memo. of the 11th instant, I started with the cart on Tuesday morning, the 12th, accompanied by Dr. Richard W. Coppinger, Surgeon, and the following men, provisioned for 8 days :—

Geo. W. Emmerson, Chf. Bos. Mte.
Peter Craig, A.B.
Charles W. Paul, A.B.
Frank Jones, Stoker.
Wilson Dobing, Gunner R.M.A.

Owing to the constant fall of snow during the previous week, the ground was covered to the depth of a foot, even in the exposed parts, whilst not unfrequently it was up to the axle of the cart.

Contrary to my expectation, the snow offered great resistance to the rolling of the wheels ; they sank deep into it, and instead of the snow yielding easily, it seemed to bind to the tires and spokes like plaster.

This made the ascent of the hills which intervene between the ship and the valley very slow and laborious; in fact at one place, unable to move the cart with its load, it had to be taken off, and the gear carried for a quarter of a mile up the shoulder of a hill and across a gulley.

It took 5½ hours to do the first mile, and finding a great accumulation of snow in the deep ravine at the entrance of the valley, which would have presented a serious obstacle on our return, and calculating that it would take 2½ days to reach the limit of the already explored ground, I determined to camp on the plain leading to Army Fiord, and using the cart as a centre, endeavour to explore some new country by walking; but our progress up hill was so slow, that darkness compelled us to camp before we had gone another ½ mile.

Thanks to the excellent descriptions of the ways and means, we were comparatively quite at home in our first essay at Arctic camping.

The thermometer, which stood at – 12° when we left the ship, fell to –16° during the night, and in the tent next morning was – 6°.

Soon after breakfast, Emmerson showed symptoms of frost-bite in his toes. He was sent back to the tent, and it took an hour and a half of hard rubbing to restore circulation.

Seeing, therefore, that our progress would be very slow, and that it would probably not even reach the limit already explored, I thought it unadvisable to run the risk of crippling the men by frost-bites, which might interfere with their travelling next Spring; I therefore returned to the ship, having been absent a little more than 24 hours.

It is just to remark that the men themselves were desirous of proceeding, and took willingly and cheerfully to their work; nor need I say that I was very much disappointed at coming back to the ship without having done or seen anything. I beg to offer the following remarks on travelling with the cart overland.

As the main object of this attempt was to ascertain the practicability of using the cart for the purpose of travel, I beg leave to say how far, in my opinion, it was successful.

I had always believed the cart would answer for overland travelling, and as a cart or sledge must be used in consequence of the quantity and weight of gear necessary for camping, I was very anxious to try it.

It was only the fore body of the original cart that was taken, consisting of two wheels, a frame on springs, and a pole to drag it by; a bottom and trough similar to those of a sledge were fitted to the frame, whilst two drag-ropes were spliced to thimbles on the axle just inside each wheel.

The weight on the cart when packed was 650 lbs. I had endeavoured in every way to make it less, but the necessity of taking sufficiently warm sleeping gear admits of no important reduction.

We started dressed in warm underclothing, over which we wore the canvas overall suits. The duffle clothing being too heavy and warm whilst employed in such hard work as dragging a cart up hill, it was carried on the cart and worn at night. To lessen the weight on the cart, we all carried our knapsacks on our backs. The gear which it is absolutely necessary to put on the cart makes it so heavy, and the places up which it must be dragged are so steep, that sometimes 20 lbs. will make the difference whether it can be done or not, whilst to the men the weight of the knapsacks does not make much difference, for the marches are not long, and, while pulling, the drag-belt round the body is a great support. So much so that I believe if it was possible for each man to carry 20 lbs. of the weight which he otherwise would have to drag, after the first time or two, a day's work would be done in this way with less fatigue than dragging the whole. At all events, what we carried we found neither heavy nor inconvenient, and it relieved the cart of 90 lbs. In addition to the knapsack, which was slung like the new military valise, each man carried his pannikin, spoon, and water bottle, whilst such things as the Captain of the Sledge's haversack, cook's bag, pemmican chopper, and daily use rum tin, were divided amongst the party. They were not in the way, and were very handy. The cart can take the full equipment of 8 men for 8 days, without being overweighted; in this respect we tested it thoroughly, for the way was very rough, but in snow more than 6 inches deep it cannot travel fast enough to repay the labour.

Seven men, or at most eight men is the best number, as the constant weights are more divided than with five men, and it admits of two officers being of the party

I was much disappointed that the snow offered such resistance to the wheels; they were not merely heavy, they actually jammed where a crust had formed over the snow; nevertheless, the power of the men is exerted so much more to advantage, and the effort even to break out the wheels is so much less than to start a dead weight, that I

still think the cart overland, with a limited number of men, is superior to a sledge. am quite sure that the crew of an 8-man sledge could not have taken their s ledg where we took the cart without extraordinary exertion, even if they could have don it at all.

We found that 7 men completely filled an 8-man tent. With 8 men I should think it must be too small.

I have the honor to remain,
Your obedient Servant, Sir,
L. A. BEAUMONT,
Lieutenant.

Captain H. F. Stephenson.

SPRING TRAVELLING PARTIES, H.M.S. "ALERT."

SUB-LIEUTENANT GEORGE LE C. EGERTON. ORDERS TO, 8TH MARCH, SLEDGE JOURNAL, 12TH TO 15TH MARCH, SLEDGE JOURNAL, 20TH MARCH TO 4TH APRIL.

H.M.S. "Alert," Winter Quarters.
MEMO. *8th March*, 1876.

Taking command of H.M. Sledge "Clements Markham," equipped and provisioned for 7 days, drawn by 9 dogs, and attended by one man, you will proceed to H.M.S. "Discovery," and deliver the letter with which you are entrusted to Captain Stephenson.

In performing this duty during the present cold weather, with the thermometer below — 45°, great caution is necessary; but I confidently trust you to carry it out successfully.

Lieut. Rawson will accompany you.

Having received Captain Stephenson's letters you will return to this ship, being careful to time your start so as to enjoy as favourable weather as possible during the journey.

G. S. NARES.

To Sub.-Lieut. Egerton,
H.M.S. "Alert."

H.M.S. "Alert," Winter Quarters.
Sir, *March 18th*, 1876.

In compliance with your orders of the 8th instant, I have the honour to inform you that I left the ship in command of H.M. Sledge "Clements Markham," drawn by 9 dogs, attended by one man and Lieut. Rawson in company, at noon on Sunday, March 12th. The details of my journey are as follows :—

Sunday, March 12th.

Left the ship at noon with an empty sledge, my own sledge having previously been taken round Cape Rawson. At 12.45, left the light sledge and proceeded with the loaded one down the coast. Having rounded Black Cape, the wind coming down the ravines was on our beam, with a good deal of drift; here we used carpet "blinkers," which we found most effectual in protecting our faces from wind and drift.

N.W. 2-5.

At 4 P.M., arrived at False Cape Union, where I picked up the despatches left last autumn, leaving a notice to the effect that I had done so. Soon after rounding the Cape, frost-bites became so numerous, that I thought it advisable to encamp, so pitched the tent ½ a mile further on, under the lee of some hummocks, at 4.30 P.M. Owing to the force of the wind and the drift, great delay was occasioned in pitching the tent, and

Temp. —34°.
Vble. 3-7. s. z. q.

what with securing the dogs (which we picketed), and removing all the gear and provisions into the tent, changing our foot gear, cooking supper, and getting bagged, it was 11 P.M., or over six hours from the time we commenced to encamp, before we were ready for the night.

Distance made good, 10½ miles. Hours on march, 4½. Hours encamping, 4½. Temp. in tent −20°

The travelling, with the exception of rounding Cape Rawson and Black Cape, where the hummocks come close into the cliff, was over hard snow, and very good.

Monday, March 13th.

The wind having fallen during the night, we commenced to get breakfast ready at 5.45, we were under way by 10.15, and for the first 3½ miles had very good travelling over this season's ice inside the line of hummocks, and across the mouths of two large ravines, where we were able to travel along the low level land upon the snow. At the south side of the second ravine a great alteration in the nature of the ice takes place. The enormous detached masses of grounded floe, which from our winter quarters to this point fend off the outer pack, here cease, and their place is occupied by a wall of conglomerated ice, the individual pieces being comparatively small, and of a thinner description. Off this ravine walls of ice are piled up in succession as far as we could see from the sledge.

Temp. of air −34° „ in tent −10° „ in bag +34° Hours detained for rest and food, 10½. Packing sledge, &c., 2½.

About 1 o'clock Niel Christian Petersen (Interpreter) complained of cramp in the stomach, so I stopped for lunch, and gave him some hot tea. He refused to eat any biscuit or bacon; the latter we were unable to eat, being frozen so hard that we could not get our teeth through the lean.

After lunch we had two miles' very bad travelling for our dog sledge. This was at the first point after False Cape Union, where the cliffs come down very precipitously to the water, a drift about 30 feet broad having formed at the bottom, but so steep and slippery was this drift, that we had to cut channels in it for the sledge runners to take in, embedding the pickaxes and shovel to leeward in order to hold the sledge should it come out of the channels, for, if it had done so, and taken charge, it would have gone over a drop of from 20 to 30 feet on to the floe beneath. The dogs were of little or no use in getting across these slopes, as it was impossible to get them to go up the cliff, and Petersen being unable to work, Lieut. Rawson and I had to get the sledge along as best we could. But these steep drops were only at intervals, the rest had piles of hummocks at the foot of the cliff, but the "ditches" round these were so steep that when the sledge went down them, which it once or twice did, it was necessary to cut away with pickaxe and shovel before we could drag it up again. The floes were very different from those we have been accustomed to further north; I should say they were not more than two or three feet above the water. A large crack, about a foot wide, came in close to the foot of the cliffs.

Stopped for lunch, ½ hour.

Petersen began to get rather worse, and was shivering all over, his nose being constantly frost-bitten, and at times taking 5 or 10 minutes before the circulation could be thoroughly restored. Lieut. Rawson had several small frost-bites, and I escaped with only one.

S.W. 3.

At 5.30 I encamped just underneath Arthur's Seat. Sent Petersen in to shift and get into his bag immediately the tent was pitched, but when we came in we found that he had turned in without shifting his foot gear, was groaning a good deal, and complaining of cramps in the stomach and legs. Made him change his clothes at once, chafed and warmed his hands and feet, which were severely frost-bitten, until they came to, and then gave him some tea as soon as possible (which, however, he brought up again), and afterwards 25 drops of sal volatile in a little rum and water, which appeared to ease him for the time.

Temp. of air −34° „ in tent −20° Distance made good, 5½ miles. Calm and S.W., 0−3 c. s. Detained for lunch, ½ hour. On the march, 6¾ hours.

Tuesday, March 14th.

In consequence of the wind, and the weak state Petersen was in, I did not think it advisable to proceed, at any rate until the wind went down. He had passed a very restless night, suffering considerably from cramp in the legs and stomach, and being unable to keep warm. Twice during the night he was sick, but this morning we gave him some cocoa, with a little biscuit soaked in it, which he kept down for an hour or so. Later on he got very bad, shaking and shivering all over and breathing in short gasps, his face, hands, and feet were all frost-bitten, the latter severely, and he had pains in his side as well. After restoring the circulation in the frost-bitten part, we rubbed him with warm flannels, and put a comforter round his stomach. Gave him 30 drops of sal volatile and rum, which pulled him together greatly.

Encamping, &c. 2. S.W. 6−6. Temp. of air −24° Detained by weather and invalid.

After this we decided that it was quite out of the question to proceed further, and that the sooner we could get him on board, the better; but there being too much

Temp. of air — 20° S.W. 3 to 6 c. q. z. wind to travel to-day, Lieut. Rawson and I commenced to make a hut in which to pass the night. This we did by digging a hole about 6 feet by 4, and 6 deep, down in the drift, then undercutting it about 4 feet in, making it 8 feet square, and 4 feet high inside, then covered the hole over with the sledge, and as soon as it was finished Petersen was removed into it, with the tent, this took us six hours to complete.

At luncheon time, as he said the pemmican had disagreed with him, we gave Petersen a little "hoosh," made from the preserved meat, which we had for the dogs. The liquid part of this he drank, but would not eat any of the meat; shortly after he threw this up. About 6 P.M. he was very bad, this time worse than before; there appeared to be no heat in him of any kind whatever, and he had acute pains in the stomach and back. We chafed him on the stomach, hands, face, and feet, and when he got rather better, wrapped him up in everything warm we could lay our hands on, at the same time giving him 40 drops of sal volatile and rum, which appeared to be the only thing that did him any good. He was constantly calling for cold water, and we gave him a little now and then, but we did not think that too much cold water could be good for a man who was so intensely cold, and had an empty stomach. We lit up the spirit lamp to raise the temperature, and as every crevice where an atom of air could get in was carefully closed, the atmosphere in the hut became somewhat thick; but we succeeded in getting the temperature up to + 7°. Later on we got the patient to take a little tea and biscuit, which, however, he soon vomited. We were constantly asking if he was warm in his feet and hands, to which he replied in the affirmative, but before making him comfortable for the night we examined his feet and found them both perfectly gelid and hard from the toes to the ankle, his hands nearly as bad. So each taking a foot, we set to work to warm them with our hands and flannels, as each hand and flannel got cold, warming them about our persons, and also lit up the spirit lamp. In about two hours we got his feet to and put them in warm foot gear, cut his bag down to allow him more room to move in it, and then wrapped him up in the spare coverlet. His hands we also brought round and bound them up in flannel wrappers, with mitts over all. Gave him some warm tea and a little rum and water, which he threw up. Shortly after I found him eating snow, which we had strictly forbidden once or twice before. In endeavouring to do this again during the night, he dragged his feet out of their covering, but only a few minutes could have elapsed before this was detected by Lieut. Rawson, who, upon examining his feet, found them in much Temp. in hu zero. the same state as before. We rubbed and chafed them again for over an hour, and when circulation was restored (he could then bend all his toes and the joints were movable), wrapped him up again and gave him a little cold water, for which he was begging, and he then appeared to go off to sleep; his breathing still continued very short.

Wednesday, March 15th.

Commenced to get breakfast ready soon after 5 A.M. Petersen appeared to be rather better, though he was not fit to travel; but, thinking that it was better to run the chance of taking him as he was, and that by waiting he might only get worse, we determined to return to the ship. At 8 o'clock we were under way, taking the tent, lower robe, coverlet, sleeping bags, and one day's provisions with us (all the sugar, tea and chocolate, and spirits of wine), and leaving behind the spare coverlet, dogs' food, and all the gear we could dispense with, covering the hut over with the sail, and leaving a staff to mark the place.

With some assistance, and a dose of 30 drops of sal volatile and a little rum, Petersen was able to get over the first portion of the journey, which was the worst, and as soon as we got decent travelling we lashed him on the sledge and covered him over with the robes. His circulation was so feeble that his face and hands were constantly frost-bitten, entailing frequent stoppages whilst we endeavoured to restore the affected parts by application of our warm hands.

The poor man complained considerably of cramp in the legs, but, much to our regret, we could not afford time to stop the sledge, as it appeared to us a matter of vital necessity not to lose a moment in placing him under medical supervision. At 1 o'clock we stopped for tea, which Petersen drank, but threw up, and after thawing his nose and hands, and securing him on the sledge, we again set off. On arriving at the Black Cape, we had to take the patient off the sledge, and while one assisted him round, the other kept the dogs back, which by this time knew they were homeward-bound, and required no small amount of trouble to hold in. After getting the sledge round and restoring Petersen's hands and nose (which were almost as bad again a few minutes after), and

securing him on the sledge, we again set off. At Cape Rawson the same difficulties were experienced, in fact rather more, for the sledge took charge down a "ditch," about 25 feet deep, turning right over three times in its descent, and out of which we had to drag it, and while clearing harness (which employed us both, one to stand in front of the dogs with the whip, while the other cleared the lines), the dogs made a sudden bolt past Lieut. Rawson, who was in front with the whip, and dragged me more than a hundred yards before we could stop them. At length, after the usual process with Petersen (that of thawing his hands and nose, which we did every time we cleared harness, or it was actually necessary to stop), we got away, thankful that our troubles were over. The dogs got their harness into a dreadful entanglement in their excitement to get home, but we were afraid to clear them lest they should break away from us, or cause us any delay, as we were both naturally anxious to return with the utmost speed to the ship, and so relieve ourselves of this serious responsibility occasioned by the very precarious state in which our patient was lying. Upon arriving alongside the ship at 6.30 P.M., we were very thankful that Petersen was able to answer us when we informed him he was at home.

Dist. made good, 16½ miles. Hours on the march, 10. Detained for lunch, ½ hour. Temp. — 30°. N.W. 1 o. s.

It is with great diffidence that I presume to say anything regarding the very valuable assistance that I received from Lieut. Rawson, but I feel I should fail in my duty if I omitted to bring before your notice the great aid I derived from his advice and help; without his unremitting exertions and cheerful spirit, my own efforts would have been unavailing in my endeavours to return to the ship with my patient alive.

During the journey all the dogs, excepting "Bruin," worked very well, and had no fits. I picketed them each night, and they remained quiet, only one dog, "Flo," breaking adrift. I found no difficulty in giving them their food, which had been frozen and broken into pieces before leaving the ship. Though it was as hard as the ice itself, they appeared to enjoy it thoroughly.

The cooking apparatus I used, one designed by Mr. White, engineer of this ship, I found to be a great improvement on the ordinary 5-man cooking apparatus; we were able to get cold water in a very few minutes, and boiling water in a little over 20 minutes; the whole time occupied in making tea for lunch was never more than half-an-hour.

The sledge, which was fitted with the new uprights, with lashings, worked admirably; it experienced many exceedingly heavy blows, but has received no damage.

On our journey out Lieut. Rawson lost his compass, the ring having carried away, but he picked it up when we were returning.

LIST OF CLOTHING HAD IN WEAR.

Lieut. Rawson.

1 jersey (thin).
1 flannel shirt.
1 waistcoat.
1 jersey (thick).
1 pair drawers.
1 pair box cloth trousers.
1 pair canvas overalls.
1 canvas jumper.
2 comforters.
1 cholera belt.
1 fur cap.
1 pair mitts, 1 pair forefinger ditto.
1 pair flannel wrappers.
1 pair blanket wrappers.
Boot hose. Canvas boots.

At Night.

The same, except
Duffle instead of canvas.
Moccasins instead of boots.
Socks instead of flannel wrappers.
1 pair of mitts only, and
1 pair of muffatees.
1 comforter only.

Mr. Egerton.

1 jersey (woollen).
2 Baltic shirts.
1 service guernsey.
1 thin flannel belt.
1 fearnought.
1 pair drawers (woollen).
Box cloth trousers.
1 pair flannel wrappers.
1 pair blanket ,,
1 pair boot hose.
Moccasins.
Canvas jumper.

At Night.

The same, and duffle jumper in addition, and 1 pair of woollen sleeping socks in lieu of flannel wrappers.

CHRIS. PETERSEN.

1 flannel.
2 Baltic shirts.
1 service guernsey.
Fearnought belt.
1 pair drawers (service).
Duffle trousers.
1 pair stockings.
1 pair blanket wrappers.
1 pair boot hose.
Moccasins.
Canvas overalls and jumper.

At Night.

The same, and duffle jumper in addition.

I regret exceedingly that I have been compelled to return to the ship without having accomplished my journey to H.M.S. "Discovery," but I trust that what I have done will meet with your approval, and that the course I adopted may be the means of having lessened the very serious and distressing condition of Petersen.

I have the honour to be,
Sir,
Your obedient Servant,
G. LE C. EGERTON,
Sub-Lieutenant R.N.

To
Captain G. S. Nares, R.N.,
Commanding Arctic Expedition.

H.M. DOG SLEDGE "CLEMENTS MARKHAM."

March 1st, 1876.

Article.	Weight.		Remarks.
	lbs.	oz.	
5-man tent	24	4	
4 poles	21	8	
Sledge	39	0	
Back and cross piece..	8	4	
Coverlet and lower robe	31	0	
Extra coverlet	9	8	
Sail	7	8	
Trough	5	12	
Sledge bottom	2	4	
1 pickaxe } 1 shovel }	13	8	
Store bag	17	0	Contents on next page.
3 sleeping bags	24	6	
Cooking utensil	13	0	
Medical stores	3	13	Contents on next page.
Drag ropes	1	8	
2 rifles, belts, and pouches	15	0	
Ammunition	5	0	50 rounds.
2 spare battens	3	7	
Snow saw	1	12	
Rum tin	1	2	
Spirit tin	2	11	
Stearine lamp	1	4	
Bag for dogs' food	4	15	
Sleeping gear	25	8	List of gear on next page.
	282	14	

SCALE OF PROVISIONS.

PER MAN PER DIEM.

	lbs.	oz.
Pemmican	0	12
Biscuit	0	12
Bacon	0	4
Potatoes	0	2
Rum	0	2
Chocolate	0	1
Sugar for ditto	0	$0\frac{1}{2}$
Tea	0	$0\frac{1}{2}$
Sugar for ditto	0	$1\frac{1}{2}$
Tobacco	0	$0\frac{1}{2}$

	lbs.	oz.
Salt	0	$0\frac{1}{4}$
Pepper	0	$0\frac{1}{20}$
Onion powder	0	$0\frac{1}{8}$
Curry paste	0	$0\frac{1}{3}$
Spirits of wine, per diem ..	2	8
Stearine (total quantity) { in case of accident to spirit tin }	3	0

LIST OF SLEEPING GEAR IN BAGS.

1 duffle jumper
1 comforter
1 pair of mitts
1 pair of boot hose
1 pair of blanket wrappers.
2 pairs of socks.
1 pair of mocassins.
1 Eugénie cap.

CONTENTS OF STORE BAG.

2 clothes brushes.
Pemmican chopper and board.
1 snow knife.
Spare lashings.
Spun yarn.
Canvas.
Palm and needle.
Beeswax and twine.
Yarns.
3 drag belts.
2 awls.
Slow match.
Complete set of spare harness and lines.

CONTENTS OF MEDICINE CHEST.

Purgative pills.
Chalk powders.
Aromatic spirit of ammonia.
Vinum opii.
Glycerine.
Glycerine ointment.
Lint.
Sticking plaster.
Wadding.
Splints.
Calico bandage.
2 eye shades.
Scissors.
Suspensory bandages.
Quill.
Pins.

TOTAL WEIGHTS.

	lbs.	oz.
Brought over	282	14
Provisions for 3 men for 7 days	69	0
,, 9 dogs for 6 days	108	0
Total weight	459	14
Weight per dog	51	$1\frac{5}{9}$

G. LE C. EGERTON,
Sub-Lieutenant.

Allowance of meat for dogs :—2 pounds of preserved meat daily.

G. S. N.

Sir,

See page 104.

I have the honor to inform you that in compliance with your Memo., 8th March. 1876, I left H.M S. "Alert," on March 20th, and arrived on board H.M.S. "Discovery" on March 25th, leaving to return to H.M.S. "Alert" on March 30th, and reaching that ship on April 4th. The following are the details of my journey :—

March 20th, 1876.

Left the ship at 9.45 A.M. with a sledge drawn by seven dogs, victualled for seven days, the two men named in the margin as crew, and Lieut. Rawson in company.

Jno. Simmons, 2nd C. P.O.
Mich. Regan, A B.

By 10.40 we had got over the difficulties at Cape Rawson, and by 11.55 those at the Black Cape, without unpacking the sledge.

Temp. — 31°.
S.W. 1 b. c.

At 12.50 P.M. stopped for lunch, proceeding again at 2 o'clock. Intending to make our first day a short one, encamped at 4 P.M., having reached the beginning of the steep cliffs where the bad travelling commences, for up to this point, with the exception of rounding Cape Rawson and the Black Cape, the travelling was very good.

Temp. — 36°.
S.S.W. 1—2.

Since we passed the other day several large hummocks have fallen in pieces, one large one which we had noticed particularly having fallen right across our track. We passed two ravines to the southward of the cairn on False Cape Union, there being a very remarkable hill standing out by itself, and well back from the shore hummocks between them.

By 6 o'clock we were all in our bags, with the exception of the cook, but as we brought all spirits of wine instead of stearine, we are able to cook inside the tent; this raises the temperature slightly and is much more comfortable for the cook, the only objection to it, a very slight one, being that it makes the air in the tent rather thick; between this and four smokers the atmosphere becomes much like a London fog; of course we tied up the ventilating holes, as we had no intention of letting any warmth inside escape into the cold air without.

Temp. in tent—7°
„ bag + 32°
„ of air — 42°
N.W. 1 b.c.

Hours travelling, 5.
„ for lunch, &c. 1h. 10m.
„ encamping, 2.
Distance made good, 12½ miles.
„ travelled, 15 „

Tuesday, March 21st.

Temp. — 42°
N.W. 2 b. c.

Roused the cook out at 6 A.M. Under way by 9 A.M. What we considered difficulties before when returning to the ship with Petersen, were now comparatively easy, having two good working hands with us, and by 10 o'clock we had arrived at the snow hut, or rather hole, where we were detained an hour clearing the snow off the sail over the hole, and repacking the sledge. The travelling now became worse, we were keeping to the land, and the whole of the drift between the slope of the cliff and the hummocks was at a considerable angle sometimes very steep, up and down hill always; the latter we did not object to, though the sledge capsized frequently, but the former gave us no end of trouble, and unless there had been four of us our progress would have been very slow, for the dogs are of little or no use in this kind of travelling, but what use they were we got out of them by constant application of the whip, but even that is no use unless one man walks ahead to lead them, while the other three, having cut a footing with a pickaxe, sit down and "one," "two," "three," "haul," until the sledge is up, when the dogs, finding the strain eased, start off at full swing down the hill on the other side, the sledge slides down a short way sideways and then capsizes, sometimes turning clean over three or four times; this style of thing went on incessantly until we became rather more knowing, and found it better for one to walk down the hill very slowly in front of the dogs with the whip in his hand, by so doing we sometimes avoided the usual capsize, being able to ease the sledge down gradually. Though it was not such a rapid method as the other, we soon found it paid better in the end. After half a mile of this work we came to the conclusion that, although the pack beneath us was nothing but what is commonly called "rubble," being pieces of floes, somewhat rounded in shape from constant turning over and rubbing together, much resembling boulders or large pebbles in form, with small pieces between them, all cemented together by freezing, it could not be much worse than what we were then having, and determined to try it. To get the sledge down from our position, which was about 20 feet above the pack, was the first thing. To do this we untoggled the dogs, secured the drag-ropes to the back of the sledge, the tent guys as well, and then, all having got as firm a footing as possible, we lowered the sledge over; unfortunately our

backing ropes were not long enough, but there was nothing for it but to let go, trusting to Providence for the rest, the sledge being uncommonly strong stood the blow it received at the bottom splendidly; to get the dogs down was a very simple matter, by the aid of the whip they soon found a way down for themselves, bustling down one on the top of the other.

After getting the sledge over a short distance of this "boulder" ice we came to a lane of perfectly smooth ice running along just underneath the perfect wall of ice formed by the grounded hummocks and floe-bergs, the outer sides of which were cut as straight and polished as smooth as a piece of marble, with parallel lines cut out by the pack grinding against them when in motion. There are some enormous hummocks piled up to a height of 60 feet in places.

A Floe-Berg.

The travelling over the smooth ice was excellent, but we seldom came to more than a hundred yards or so of it without hummocks intervening, which generally had to be cleared away with pickaxes. As we got further on, we found water on the top of this lane of ice, which appeared to be continuous; and the pack being too hummocky to attempt, we were compelled to take to the land again just opposite No. 3 Ravine, that is, the third ravine from the cairn on Cape Union. Half a mile further on the slopes became too much for us, so we took to the floe once more, preferring the "one," "two," "three," "haul!" and getting something, to the same with no result. Temp. — 37 N.E. 1 — 3

Took to the land again off No. 4 Ravine, a very large ravine trending to the northward; here the cliffs do not come down to the water line at such a steep incline, leaving a good road between land and grounded floe-bergs. As the land trends away to the westward to form the bay, the hummocks become less in size and number.

When we came to any good travelling, Lieut. Rawson and I walked on ahead, the

dogs keeping close to our heels, while the men took it in turns to sit on the sledge and to steer. At 6.15 we reached the depôt and encamped beneath it, all pretty tired, dogs ditto. We saw what appeared to be bear tracks at No. 3 Ravine, but could not be certain, as too much snow has fallen to leave them sufficiently well marked to identify; also saw several fox tracks, but no living animal of any description. The depôt I found to be perfectly correct, nothing having been touched. I visited the cairn in hopes of finding some news from the "Discovery," should they have visited it in the autumn, but I found nothing but our own record. I placed a notice in the cylinder stating the "Alert's" winter quarters. There seems to be a good road across the bay to Cape Frederick VII., which bears W.S.W. from the depôt.

Temp. air – 37°
,, tent. 11 p.m. – 3°
Calm b. c.

Hours travelling, $7\frac{1}{4}$.
,, for lunch, &c., 2.
,, encamping, &c., 4.
Distance made good, 9 miles.
,, travelled, $15\frac{1}{2}$,,

Wednesday, March 22nd.

Temp. air – 26°
,, tent – 24°
,, bag (warm side) + 37°
Temp. bag (cold side) + 33°
Calm b. c.

Called cook at 6.30 A.M. Under way by 10.30 A.M. Across the bay the travelling was very fair, the line of Sastrugi running exactly in our course. Here we had a slight misfortune, the toe of the sledge runner caught under a ridge and sprung. As we approached Cape Frederick VII., getting under the land, the travelling became more hummocky, and the snow was just hard enough *not* to bear. Now if there is one thing which takes it out of one more than another, it is that you tread upon a piece of snow which looks nice and hard, and as soon as your weight comes fairly on it—not just when you lift your other foot, but several moments later—down you go, sometimes up to the thigh, your teeth clatter, and you run a very good chance of breaking a leg or being hit in the face with the knee of your other leg.

Off the point it was far too hummocky to hold out any hopes of getting round on the ice, so we took to the land, and found that the same as the bad part yesterday, up and down hill, hauling and capsizing continually. Once, when the sledge capsized, the backs caught against a hummock and both carried away, causing a short delay.

At 1.40 stopped for lunch, and fished the sledge backs with the two spare battens. At 2.30 we started again, travelling still very bad; and at 5.45 pitched the tent, just to the northward of a ravine. Rawson sprained his wrist, so I put on a bandage. Simmons' wrist has been rather sore where it was frostbitten some time ago; applied cotton wool and a bandage. The upper parts of our sleeping bags, where they are covered with canvas, were frozen so stiff that we found some difficulty in getting into them.

Temp. air – 24°
,, tent zero
S.W. 1 b. c. s.

Hours travelling, $6\frac{3}{4}$.
,, for lunch, &c., 1.
,, striking, pitching, &c., $5\frac{1}{4}$.
Distance made good, 5 miles.
,, travelled, 9 ,,

Thursday, March 23rd.

We all suffered considerably from cramps in the legs last night, more so than usual; under both knees and up to the thighs are generally the worst places. I was cook, so got under way with the cocoa at 6 A.M. Turning out in the morning and rigging for the day is the worst part of the 24 hours. The first thing is to see that all foot gear is ready, and that a blanket wrapper is not under somebody else's bag; having prepared boot hose and wrappers so as to slip on as quickly as possible, off comes the warm night gear one foot at a time, and the first thing to put on is a flannel wrapper 16 inches square, which has been drying next the skin all night; then comes a boot hose, the sole of which is perfectly hard and a good deal of frozen snow sticking to it, which sends the first chill through one's foot; next comes a blanket wrapper, which is so hard that, when tapped, it sounds like a piece of wood; this has to be put on the same as it was taken off, for the shape of the foot is so clearly stamped on it that the corners would not double over if put on any other way, as it is, the corners are tolerably hard, and one generally finds a hard place next to the big toe; lastly, put on the moccasin and kicking straps, by which time all the blood in one's body has gone into the head, the fingers are cold, and the kettle has to be supplied afresh with snow. When that is all right, the same misery as before has to be gone through with the other foot, and by the time the cook's bag is rolled up and got out of the way the water is boiling, in goes the chocolate and sugar,

and then comes the brushing down. The cook puts on his canvas jumper, walks on the bodies of the sleepers in the most promiscuous manner, and having covered up all the crevices with the coverlet, brushes down the condensation, removes the coverlet outside the tent on to the sledge, and then rouses out the others, who sit up in their bags while the cook serves out the cocoa, he having first provided a spoon to each and placed the biscuit in the centre of the tent. When all are served, he puts on the stewpan full of snow to get ready for the pemmican. As soon as the cocoa is finished and the "blue" served out ("blue" is the name given to what is left when all have been served), all hands set to work to rig for the day, the cook keeping himself warm outside the tent the best way he can until the pemmican is ready, by which time all are rigged and the bags rolled up. When the pemmican has been discussed, if time admits, a few minutes are given for a smoke; then prayers are read, and all commence to pack the sledge, strike the tent, clear the dogs' harness, &c., except the cook, who cleans up pannikins, &c., ready for the next meal.

The way we divided our daily rations was to have for breakfast, cocoa and biscuit, and half the allowance of pemmican; for lunch, cold bacon, tea, and biscuit; and for dinner, tea and pemmican, and a glass of grog the last thing.

By 10 o'clock we were under way. For the first $1\frac{1}{2}$ miles we stuck to the land, travelling on the slope inside the hummocks; but this becoming steeper, we tried the floes again. The travelling was very rough, and we had continually to assist the dogs and sledge over the hummocks, but occasionally we got a smooth piece without any water. We came to a bay about 3 miles wide and 2 deep (Wrangel Bay); this we crossed, travelling rather rough. The point at the southern extremity of this bay gave us no end of trouble to round; we tried the land, but found it perfectly impassable, even on foot; the cliffs are very steep, coming down to the water level at an angle of, I should say, 35°; the hummocks are shoved well up on the land, showing considerable pressure has taken place here. We lowered the sledge on to the floe, a height of 25 feet, having cleared away with pickaxes. There being too much water on the crack, which still continues outside the hummocks, we struck out more from the land, and came to one or two very good floes, and, by mounting hummocks continually, were able to pick a very fair road.

At 6.45 encamped on the floe. Each night we picketed the dogs, and found it acted very well, none of them breaking adrift except "Flo," who managed to get out of her harness, and any other lashings we put round her, every night, but she always lay down quietly and gave us no trouble. Though the temperature was not very low, we all felt very cold, and could not get warm, do what we would; the tips of my fingers, which were frostbitten during my last trip from clearing harness, have become blistered, and are rather uncomfortable; we came to the conclusion that we were just beginning to find out why they lined Southsea Beach for us when we left England, though they did not know why themselves. All our moccasins, which were soled with the tops of fishermen's boots before we left the ship, have holes in them, the snow gets in and cakes, forming a pad about $\frac{1}{4}$-inch in thickness, this we found made our feet sore, so cut the soles off.

Temp. air – 29°
Calm b. c.

Hours travelling, $7\frac{1}{2}$.
" lunch, &c., 1.
" striking, pitching, &c., $5\frac{3}{4}$.
Distance made good, 12 miles.
" travelled, 15 "

Friday, March 24th.

Temp air – 30°
" tent – 27°
N.E. 1 b. c.

5.50. Roused Rawson, who was cook. Under way by 9.15. Found a floe which would take us into the land a distance of $1\frac{1}{2}$ miles. Got to Cape Beechey at 11.10, having come through about $\frac{1}{2}$ a mile of very hummocky stuff just off the point. A glorious day, and the prospect of good travelling before us. All very thirsty, so halted for a quarter of an hour to melt some snow.

Temp. air – 35°

All along Shift Rudder Bay we had excellent travelling on the snow-foot, then came another bay, deeper than the last and about three miles wide, as there appeared to be a good even floe in it we struck across, but found the snow just hard enough not to bear. About the centre of this floe we stopped for lunch at 3 P.M. Started at 4 P.M., and made the land as soon as possible, where the travelling was better, but the snow appears to be getting softer as we get more to the southward. At 6.15 we pitched at the northern side of St. Patrick Bay. Saw numerous fox tracks during the day; there seems to be one fox walking ahead of us, his track is quite fresh, and exactly in our course. Saw an old bear track.

Temp. – 33°

Temp. air—34°
„ tent — 27°
„ bag — 10°
Calm b. c.

Hours travelling, $7\frac{1}{2}$.
„ for lunch, &c., $1\frac{1}{2}$.
„ striking, pitching, &c., $5\frac{1}{4}$.
Distance made good, 12 miles.
„ travelled, $12\frac{1}{2}$ „

Saturday, March 25th.

Temp. air — 37°
„ tent — 34°
„ bag — 5
Calm b. c.

Called cook at 6 A.M. At 9.15 started. Crossed St. Patrick Bay on a large blue-topped floe, extending nearly the whole way across, the snow upon it soft. About $1\frac{1}{2}$ miles from the southern point of St. Patrick Bay we came upon a dog-sledge track coming down from the hill, and leading round the coast, this we followed until it led to a ravine, but as we had a loaded sledge we thought it would not be wise to follow this up. Round Cape Murchison and the next point there are piles of hummocks, which are large enough to stop a sledge should the ice outside them be on the move, and at these points the land is impassable. We met with rather heavy travelling, all the snow being soft. At three o'clock sighted a cairn on the brow of a hill above the next point, from this point we struck across the floe for the next one ; snow soft. Saw a Dutch ensign flying on a small island, which we recognised as the place where the "Alert" touched the ground last year. Took to the land here, and found a well-beaten track, so we stepped out at a brisk pace, the dogs getting very excited. After rounding numerous small points, which shut out the ship from view, we at length sighted the "Discovery," and gave three cheers as loud as ever we could. Our party were all in very high spirits at the thoughts of seeing our friends on board, and the prospect of a comfortable night instead of the usual cold and cramps. We were about half-a-mile from the ship when we cheered, and we could see one or two figures alongside the ship stop and look in our direction ; we gave another three, and presently we saw all hands running out to meet us, and shortly afterwards there was shaking of hands and answering questions by the hundreds. When we could get a word in we were very glad to hear that they were all well, and had spent a very pleasant winter. At 5 o'clock we were on board.

Hours travelling, $6\frac{1}{2}$.
„ for lunch, &c., $1\frac{1}{4}$.
„ striking, &c., 2.
Distance made good, 12 miles.
„ travelled $16\frac{1}{2}$ „

Thursday, March 30th.

Return Journey.
Temp. — 31°
W.N.W. 1—3.
b. c.

At noon left the "Discovery," with the same crew, and accompanied by Lieut. Rawson.

Temp. — 37°

The snow was considerably harder than on our journey down, which is due to a westerly gale which has been blowing for the last two days. Crossed the floe in St. Patrick Bay, and encamped at the north side of it at 5.30. as there was a sharp cutting wind, with a good deal of drift, and we were being frost-bitten frequently.

Temp. air — 43°
„ tent — 27°
„ bag + 2°
Vble. 1—4 b. c.

Hours travelling, $5\frac{1}{2}$.
„ lunch, &c., nil.
„ pitching, &c. $2\frac{1}{4}$.
Distance made good, 12 miles.
„ travelled, 16 „

Friday, March 31st.

Temp. air — 44°
„ tent — 36°
Calm. b. c.

5 A.M. Called cook. A splendid morning. No wind. Under way at 9 o'clock, Instead of crossing the bay to the south of Shift Rudder Bay, we kept to the land and had very good travelling the whole way. Here we came upon bear tracks very clearly marked on the snow. 12.30. Stopped for lunch. 1.30. Started again, the good travelling continuing as far as Cape Beechey, which we reached at 3.20. Half a mile further on we made straight out for the floes, through half-a mile of hummocks, we came to a small floe, but saw a large one further on, so pushed straight out from the land, through another $\frac{1}{2}$ mile of hummocks, and reached a good large floe, snow tolerably hard, and the line of sastrugi running in the direction we were travelling. At 6.15 encamped. It was my turn for cook again, and I could not make out why we could not get the kettle to boil, until at length I discovered that it leaked considerably, and put out the spirit lamp ; this was not pleasant, however, we had a stew-pan, which we could use for making the tea in, and which we found answered the purpose very well, but took much longer to boil, and the tea was more like soup, owing to the remnants of pemmican which would stick to the stew-pan.

Temp. air — 37°
S.W. 1—3

Hours travelling, $7\frac{1}{4}$.
„ lunch, &c., 2.
„ striking, pitching, &c., $5\frac{1}{2}$.
Distance made good, 15 miles.
„ travelled 20 „

Temp. air — 42°
„ tent — 30°
„ bag + 2°
Calm b. c.

Saturday, April 1st.

I roused out at 6.30, and set to work about breakfast, using the stew-pan only. A clear morning, but blowing a little from the N.E. At 9 o'clock we were getting under way, when it suddenly came on to blow much harder. The wind right in our teeth, and a great deal of drift; could not see more than a few yards before us, so decided to wait until the wind went down a little. There being no signs of the wind abating, resumed the tent and prepared for a day of misery, for the best part of the day is when you are on the move, and to be cramped up in one's bag, or get miserably cold if you get out of it, is not a pleasant prospect to look forward to.

However, we determined to make the best of it, and having one book—"The Ingoldsby Legends"—with us, we read, smoked, sung, and slept all day, and, excepting the pains in one's shoulders and legs from cramp, it was not so bad as we had expected.

The greatest temperature we could raise in the tent was + 10°, that was while we had the lamps lighted, and the temperature outside was only —19°. The wind fell a little in the evening, but while the sun is hidden from us by the cliffs it is too dark to proceed.

N.E. 2 b. c.
Temp. air — 34°
N.E. 2—6. b. c. z.
Temp. air — 26°
Noon, N.N.E. 3—7. b. c. z.
Temp. air — 17°
4 p.m., temp. tent —19°
6 p.m., temp. tent —15°
N.E. 6 b. c. z.

Sunday, April 2nd.

Rawson was cook, and began to get the cocoa ready at 4.30. Under way by 7.30. The wind has gone, and it is a fine day. One of the dogs, "Soresides,' was very unwell to-day, he refused to eat anything, and was not able to pull. Slipped him from the drag-ropes, but as he would not keep up with us, were obliged to lead him. By keeping well out (about $2\frac{1}{2}$ miles) from the land, we got on very well for the first two hours, but after that we came to a regular jamb. No more floes in sight, so there was nothing for it but to make for the land. Between us and the shore there was nothing but hummocks, so we knew we had our work cut out to get there. After an hour or so at it we picked up one or two wrinkles; instead of cutting a broad path for the sledge we simply made a way for one runner, and then canted the sledge up, one hand preventing it from capsizing; also, instead of getting into a gap not wide enough for the sledge, it was saving time to let the dogs go through, and (if the hummocks on either side were not more than 6 feet high) the sledge over the rounded tops of the hummocks, and by one of us walking ahead to lead the dogs and pick the way, two walking, one on either side in front of the sledge to guide it, and give it a heave over to right or left as required, and to clear the lines, which frequently catch in pieces of ice (sometimes dragging the wretched dog's head almost under the sledge runners), and the fourth man steering at the back of the sledge, we got on at a very fair pace, and reached the land at the north point of Wrangel Bay at five minutes past twelve, where we had lunch. At 1·30 started and travelled on the crack underneath the ice-wall, until we came to a slight jamb, when, seeing a very nice looking floe not more than a couple of hundred yards off, we unfortunately were tempted to try it, found it very good, hard snow, but led us gradually away from the land, and by the time we had got to the end of it found we were a mile from the shore hummocks, and large hummocks between; having picked out the best route, set to work with pickaxes to make a way for the sledge, but it was not until 5.30 that we got to the land again. Travelled on the slope between the land and grounded bergs to about a mile from Cape Frederick VII., where we camped. We have had to put "Soresides" in a spare bread bag, and carry him on the sledge since lunch.

Temp. air — 42°
„ tent — 27°
N.E. 1 b. c.

Hours travelling, 9.
„ lunch, &c., 2.
„ striking, pitching, &c., $4\frac{1}{4}$.
Travelled, 18 miles.
Made good, 10 miles.

6·30
Temp. air — 40°
„ tent — 27°
Calm, b. c.

Monday, April 3rd.

At 4.45, called the cook. Under way at 8.30. A fine day, but very misty. Simmons' ankles a little swollen, and when walking feels his "tendon Achilles" a good deal. I bandaged his ankle. "Soresides" was rather better to-day, so put him in harness. We knew what to expect in the way of travelling, so were not disappointed at having an hour's work to get round Cape Frederick VII. At this point there is one of the most difficult places to pass on the journey; first we had to haul the sledge up

on the top of a hummock, which was about 25 feet above the floe; down the slope on the floe side was very deep snow, so we let the dogs struggle down, and then let the sledge go after them, but it buried itself half-way, and we had to dig away the snow, and haul it out again. This occurred a second time; at the bottom were a lot of small hummocks and deep cracks between them, covered over with snow, which we found very troublesome, the cracks being wide enough to let one in up to the waist. The travelling across the bay was much the same as we had before; reached the land at the northern side of Lincoln Bay, about a mile to the eastward of the depôt, at 12.20, when we stopped for lunch. At 1.20 started off again, and had a very good road as far as the ravine, where we took to the ice, and kept on the crack as much as possible, but occasionally were obliged to leave it, as it was too narrow to pass; these places were generally caused by pieces of very heavy floes having grounded outside the regular line of hummocks, and having relieved the latter of the pressure, became piled up with the débris of the pack as it crushed up against it. At 7 P.M. we had arrived abreast of Arthur's Seat, found great difficulty in getting the sledge over the hummocks on to the land, the lowest and best place we could find for the purpose being a straight wall of ice 10 feet high, which was so steep that we had to cut a footing in it to climb up at all. Then we cut away at the edge, and placed boulders underneath, slipped the dogs, and hauled the sledge over. Here Lieut. Rawson very nearly came to grief, trying to hold on to the dogs, they bolted with him down the other side of the hummocks, dragging him behind them head foremost.

After clearing three feet of snow off the sail, and removing it, we found the interior of the snow hut just as we had left it, hardly any snow having found its way in. Placed all our gear inside, and then pitched the tent over the hole. There was ample room inside for four of us, and for the cooking apparatus, and though the temperature of the air outside was − 42°, we got it up to + 15° inside while cooking, the mean temperature being about − 5°, the minimum − 17°. We were very much warmer and more comfortable in this "snow pit," than we should have been in the tent.

Temp. air − 42°.
N.E. b. c.

Distance made good, 11 miles.
„ travelled, 20 „
Hours travelling, 9½.
„ for lunch, &c., 1.
„ striking tent, &c. } 5.
„ clearing away snow, &c. }

Tuesday, April 4th.

Temp. air − 15°
Calm b. c.

At 6.30 A.M. called the cook. A beautiful day. 10.30 started, taking with us all the gear left here when we returned to the ship with Petersen. Travelling bad for the first 1½ hours, the sledge capsized a great many times down the slopes, being rather top-heavy. At 1.45 we rounded False Cape Union, and at 2 o'clock stopped for lunch. At 3.20 were under way again; had a very heavy drag up the slope at the Black Cape, and the dogs, evidently knowing they were not very far from home, were so eager to get on, that we could not prevent them from tearing down the other side of the slope at full speed, the sledge overtaking them before they reached the bottom, but they contrived to keep clear of it in the most remarkable way. Just before reaching Cape Rawson, we met Lieut. May and Mr. Pullen, who very kindly assisted us round, and we arrived on board at 8 P.M., very disappointed at finding the main sledging parties had started, but very thankful for returning to the ship all well.

Temp. air − 30°.
Calm b. c.

Distance made good, 15 miles.
„ travelled, 20 „
Hours travelling, 8¼.
„ lunch, &c., 1¼.
„ packing sledge, &c., 2.

Temp. air − 32°.
Calm b. c.

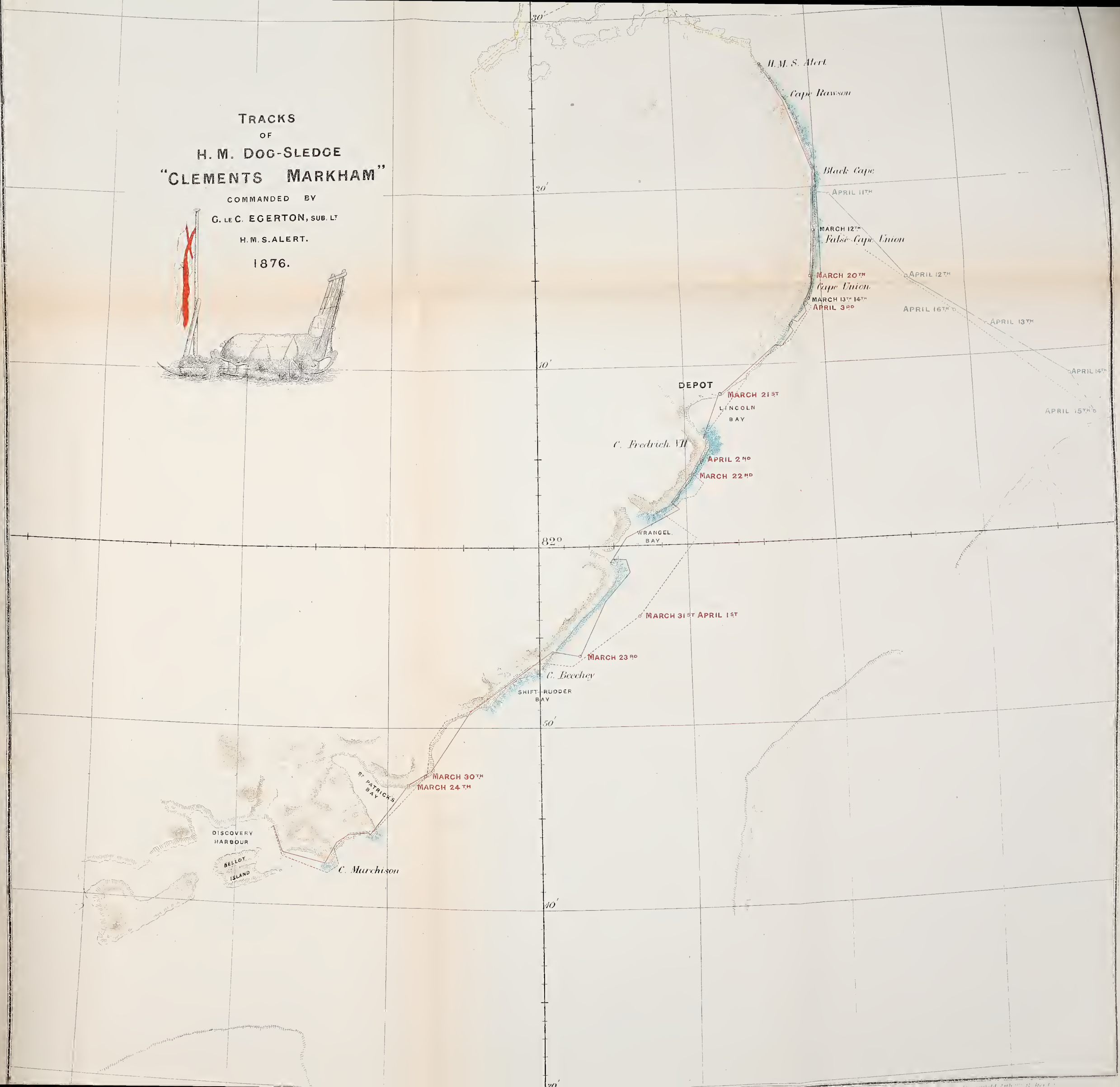
During the journey we never wore our duffle jumpers during the day, but found them warm and comfortable for sleeping in. Lieut. Rawson and I wore box-cloth trousers, and the two men duffle trousers; the advantage we found in the box-cloth was that canvas overalls were not required, the snow and ice which stuck to them being easily brushed off.

The two men, Jno. Simmons and Michael Regan, who accompanied me, both worked well and cheerfully, and very much to my satisfaction; and during the coldest nights and most unpleasant portions of the journey we were always enlivened by Lieut. Rawson, who, under any circumstances, was always in the best spirits.

I have the honor to be, Sir,
Your obedient Servant.

Captain Nares, R.N., F.R.S.,
Commanding Arctic Expedition, 1875-6.

G. LE C. EGERTON, *Sub-Lieut.*


TRACKS
OF
H. M. DOG-SLEDGE
"CLEMENTS MARKHAM"
COMMANDED BY
G. LE C. EGERTON, SUB. LT
H. M. S. ALERT.
1876.
H. M. S. Alert
Cape Rawson
Black Cape
APRIL 11TH
MARCH 12TH
False Cape Union
MARCH 20TH
Cape Union
MARCH 13TH 14TH
APRIL 3RD
APRIL 12TH
APRIL 16TH
APRIL 13TH
APRIL 14TH
APRIL 15TH
DEPOT
MARCH 21ST
LINCOLN
BAY
C. Fredrich VII
APRIL 2ND
MARCH 22ND
WRANGEL
BAY
MARCH 31ST APRIL 1ST
MARCH 23RD
C. Beechey
SHIFT-RUDDER
BAY
MARCH 30TH
MARCH 24TH
ST PATRICK'S
BAY
DISCOVERY
HARBOUR
BELLOT
ISLAND
C. Murchison
30'
20'
10'
82°
50'
40'
20'

TRACKS
OF
H. M. DOG-SLEDGE
"CLEMENTS MARKHAM"
COMMANDED BY
G. LE C. EGERTON, SUB. LT
H. M. S. ALERT.
1876.
50′
40′
30′
20′
H.M.S. Alert
Cape Rawson
Black Cape
APRIL 11TH
MARCH 12TH
False Cape Union
MARCH 20TH
Cape Union
APRIL 12TH
MARCH 13TH 14TH

JOURNEY FROM "ALERT" TO "DISCOVERY."

Constant Weights.

	lbs.	oz.
Tent	24	4
Poles	21	8
Sledge	39	0
Back and Crosspiece	8	4
Coverlet and Lower Robe ..	31	0
Extra Coverlet	9	8
Sail	7	8
Trough	5	12
Sledge Bottom	2	4
Pickaxe and Shovel	13	8
Store Bag	17	0
4 Sleeping Bags	16	8
Cooking Utensil	13	0
Medical Stores	3	13
Drag-ropes	1	8
2 Rifles	15	0
50 Rounds Ammunition ..	5	0
2 Spare Battens	3	7
Snow Saw	1	12
Rum Tin	1	2
Spirit Tins	2	11
Stearine Lamp	1	4
Bag for Dogs' Food	4	15
Sleeping Gear, Duffle Jumpers, &c.	50	0
Total ..	297	8

Provisions.

	lbs.	oz.
Pemmican	21	0
Biscuit..	21	0
Bacon	7	0
Potatoes	3	8
Rum	3	8
Chocolate	1	12
Sugar	3	8
Tea	0	14
Salt	0	7
Pepper..	0	$1\frac{2}{5}$
Onion Powder..	0	$3\frac{1}{2}$
Curry Paste	0	$3\frac{1}{2}$
Total ..	80	$9\frac{2}{5}$

Provisions for Dogs, 48 lbs.

Totals.

	lbs.	oz.
Constant Weights	297	8
Provisions	80	$9\frac{2}{5}$
Dogs' do.	48	0
Total ..	426	$1\frac{2}{5}$

	lbs.	oz.
Weight per dog	60	14

JOURNEY FROM "DISCOVERY" TO "ALERT."

Constant Weights.

	lbs.	oz.
The same as upon outward journey	297	8
One Bag containing Gear for Lieut. Rawson's Sledge Crew	30	0
Total ..	327	8

Provisions.

	lbs.	oz.
Pemmican	27	0
Bacon	13	8
Biscuit..	27	0
Potatoes	4	8
Rum	4	8
Chocolate	2	4
Sugar	4	8
Tea	1	2
Salt	0	9
Pepper..	0	$1\frac{4}{5}$
Onion Powder..	0	$4\frac{1}{2}$
Curry Paste	0	$4\frac{1}{2}$
Spirits of Wine	22	8
Total ..	108	$1\frac{4}{5}$

	lbs.	oz.
Provisions for Dogs	112	0

Totals.

	lbs.	oz.
Constant Weights	327	8
Provisions	108	$1\frac{4}{5}$
Dogs' do.	112	0
Total Weight ..	547	9

	lbs.	oz.
Weight per dog	78	3

NORTHERN SLEDGE PARTY.—ORDERS TO COMMANDER MARKHAM, 3RD APRIL. ORDERS TO LIEUTENANT PARR, 3RD APRIL. EQUIPMENT OF SLEDGES. REPORT OF COMMANDER MARKHAM, 1ST JULY. SLEDGE JOURNAL, 3RD APRIL TO 14TH JUNE. SURGEON E. L. MOSS ORDERS TO 3RD APRIL. SLEDGE JOURNAL, 3RD TO 14TH APRIL. ORDERS TO 23RD APRIL. SLEDGE JOURNAL, 23RD TO 30TH APRIL. REPORT OF CONDITION OF NORTHERN SLEDGE PARTY, 1ST JULY.

H.M.S. "Alert," at Winter Quarters,
Lat. 82° 27′ North, Long. 61° 22′ West,
3rd April, 1876.

MEMO.

"Marco Polo."
"Victoria."
"Bulldog."
"Alexandra."
"Bloodhound."

Taking command of the crews of the sledges named in the margin, you will proceed to the neighbourhood of Cape Parry, and from thence force your way to the northward over the ice, with the two boats which have been equipped for that purpose, and provisioned for an absence of about 70 days.

2. The object of your journey is to attain the highest northern latitude possible; and to ascertain the possibility of a more fully equipped expedition reaching the North Pole.

3. Lieutenant A. A. C. Parr, an officer in whose ready ability both you and I have the utmost confidence, has been ordered to accompany you as second in your undertaking.

4. Dr. Moss, who, in addition to his duties in medical charge of your party while he is with you, has volunteered to take executive command of one of the depôt sledges; and Mr. George White, engineer, who commands the second, have been directed to place themselves under your orders until they have assisted you to pass the heavy barrier of stranded floe-bergs bordering the coast.

5. Previous to their parting company from you, the position on the land where you wish a provision depôt to be left for use on your return, is to be clearly defined and marked, the sledge captains, as well as the officers in charge, being made acquainted with it.

6. At present we know little or nothing concerning the movement of the ice in the offing.

The journey on which you are about to engage, is therefore a far more arduous one than arctic journeys usually are. The heavy nature of the ice across which you have to travel has hitherto baffled all attempts made to cross it, and the formidable obstacles it presents at present, while stationary, must be considerably increased when once it is in motion.

Even during the summer, with occasional lanes of navigable water between the floes, Parry and Ross could scarcely average a daily journey of three miles.

7. Therefore, while, with full confidence in your ability and discretion, I leave you entirely free as to the carrying out of your journey in all its details, I must direct your most serious consideration, first, to the extreme hazard of attempting an advance beyond the time when half your provisions will be expended, and, secondly, to the danger of separating your party or of leaving depôts of provisions on a road which it is impossible to mark, and which will probably break up in your rear.

It is true that your men on the return journey will be dragging diminished loads; but towards the end of the season, the ice will probably be in motion, and one of your chief enemies, the misty weather, will be more continuous. Over stationary ice, however rough, there is a choice of roads; once it is in motion, no choice is left.

8. During your absence, should you, contrary to my present expectations, experience a general break up of the ice, or, arriving at the edge of the firm ice, find the outer pack broken up, you are to consider the position you will then have attained, as the limit of your advance; and, after making what observations are practicable, you are to retreat to the ship.

9. Should you fortunately discover land to the northward, after considering the probability of Lieutenant Aldrich extending his journey to the same neighbourhood, you will explore it in such directions as will ensure your united investigations, obtaining full information concerning its resources and fitness as a base from which to make a further advance.

10. Lieutenant Aldrich, provisioned for an absence of 76 days, has been ordered to advance along the northern coast of Grant Land, in whatever direction it and the line of heavy ice may trend. A copy of his orders is supplied you.

See page 167.

So long as your respective sledges journey together you will mutually assist each other, but the two parties being distinct, any compulsory detention to one is not to delay the other.

11. With regard to the remarks to be daily noted in your travelling journal, you are to consider my general order of the 21st July, 1875, as being still in force. *See page* 39.

Any information you can obtain concerning the creation and yearly change of heavy ice-floes, and the transition of the surface-snow into ice, whether by pressure or otherwise, must prove of the utmost value.

12. Lieutenant Parr has been furnished with a copy of these instructions.

G. S. NARES,
Captain Commanding the Expedition.

To Commander A. H. Markham,
H.M. Ship "Alert."

H.M.S. "Alert" (Winter Quarters),
3rd April, 1876.

MEMO.

Taking command of H.M. Sledge "Victoria," you will accompany Commander A. H. Markham on his journey to the northward over the ice, and act in obedience to his orders as second in command of the party.

Having the utmost reliance that you will cordially support and assist him with your good judgment, determination, and care of your men, in the difficulties to be overcome during the arduous journey before you, it is unnecessary for me to do more than furnish you with a copy of his instructions.

G. S. NARES,
Captain Commanding Expedition.

To Lieutenant A. A. C. Parr.

SUMMARY OF THE EQUIPMENT, AND THE DISTRIBUTION OF WEIGHTS OF THE SLEDGES PLACED UNDER MY ORDERS FOR THE ENSUING SPRING EXPLORATION.

NORTHERN DIVISION, CONSISTING OF—

H.M. Sledge "Marco Polo"	1 officer and 8 men.
H.M. Sledge "Victoria"	1 officer and 7 men.
H.M. Sledge "Bulldog"	1 officer and 7 men.
H.M. Sledge "Alexandra"	1 officer and 7 men.

H.M. Sledge "Bloodhound," with 4 men, will accompany the division for two or three days from the ship, and will deposit provisions at Depôt Point, in readiness for the return of the supporting sledges, should they require it.

The provisions have been packed in bags, each containing the weekly allowance per sledge crew, with the exception of pemmican and bacon (the greater part of which is already advanced), and the rum and spirits of wine, which are stowed separately on their respective sledges.

SLEDGE CREWS.

"MARCO POLO."

Commander Markham.	Thos. Rawlings, C. Fcle.
Thos. Joliffe, C.M.T.	Jno. Radmore, Chf. Carp. Mate.
Danl. Harley, C.F.T.	Jno. Shirley, Stoker.
Thos. Simpson, A.B.	Alfred Pearce, A.B.
Wm. Ferbrache, A.B.	

"VICTORIA."

Lieut. Parr.	Edwin Lawrence, C.Fcle.
Jno. Hawkins, Cooper.	Jno. Pearson, A.B.
Reub. Francombe, A. B.	Wm. Maskell, A. B.
Geo. Winstone, A. B.	Geo. Porter, Gunr. R.M.A.

"BULLDOG."

Dr. Moss, Surgeon.	Jno. Thores, Ice Qr. Master.
Dav. Mitchell, A. B.	Geo. Cranstone, A. B.
* Jas. Hand, A. B.	* Alfred Hindle, A. B.
* Thos. Chalkley, A.B.	* Elijah Rayner, Pte. R.M.

* These men belong to H.M.S. "Discovery."

"Alexandra."

Mr. Geo. White, Engr.
Robt. Joiner, Lead. Stoker.
Jas. Self, A. B.
Arthur Norris, Carp. Crew.
David Deuchars, Ice Qr. Mr.
James F. Cane, Armourer.
Wm. Hunt, W. R. Cook.
Thos. Smith, Pte. R. M.

"Bloodhound."

* Geo. Bryant, Capt. Fcle., Capt. of Sledge.
* Geo. Stone, 2nd Capt. F. T.
Vint. Dominico, Sh. Cook.
Wm. Malley, A. B.

"Marco Polo."

	lbs.	oz.		lbs.	oz
Sledge (complete)	180	0	Cooking gear	23	0
Tent (complete)	47	0	Cook's bag	10	0
„ poles, 5 in number ..	24	0	Gun and ammunition	21	4
Coverlet..	31	8	Medical stores	14	0
Spare coverlet	20	10	Instruments	20	0
Lower robe	23	0	Boat	740	0
Canvas floor cloth	13	0	Mast	21	0
Waterproof floor cloth	15	8	3 Oars	20	0
Sail (a 12-man sledge sail) ..	11	8	6 Paddles	20	0
9 Sleeping bags..	73	0	Lime juice and sugar (3lbs of each)	9	0
9 Knapsacks	108	0	9 pairs of travelling boots ..	24	12
2 Pickaxes	14	8	Cook's boots	1	8
Shovel	6	8	4 pairs of spare travelling boots	11	0
Store bag	25	0			
Carpenter's bag..	7	4	Constants ..	1,535	14

"Victoria."

	lbs.	oz.		lbs.	oz.
Sledge (complete)	130	0	Cooking gear	32	0
Tent (complete)	44	0	Cook's bag	10	0
„ poles, 5 in number ..	25	0	Gun and ammunition.. ..	10	0
Coverlet	31	8	Instruments	15	0
Spare coverlet	20	0	Boat	440	0
Lower robe	22	12	Mast and 3 oars	34	0
Canvas floor cloth	14	8	4 Paddles	12	0
Waterproof ditto	11	8	Lime juice and sugar (3 lbs of each)	9	0
Sail	9	4	8 pairs of travelling boots ..	22	0
8 Sleeping bags	64	0	Cook's boots	1	8
8 Knapsacks	96	0	4 pairs spare travelling boots..	11	0
2 Pickaxes	14	8			
Shovel	6	8			
Store bag (including lead and 100 fms. line)	28	0	Constants	1,114	10

"Bulldog."

	lbs.	oz.		lbs.	oz.
Sledge (complete)	131	0	Pickaxe	7	4
Tent (complete)	43	0	Shovel	6	8
„ poles, 5 in number ..	23	0	Store bag	16	4
Sledge trough	10	0	Cooking gear	29	0
Coverlet	28	0	Cook's bag	10	0
Spare coverlet..	20	8	Gun and ammunition	15	0
Lower robe	22	12	Cook's boots	1	8
Canvas floor cloth	15	0	Medical stores..	12	0
Sail	9	10			
8 Sleeping bags	64	0	Constant weights ..	544	6
8 Knapsacks	80	0			

* These men belong to H.M.S. "Discovery."

"ALEXANDRA."

	lbs.	oz.		lbs.	oz.
Sledge (complete)	131	0	8 Knapsacks	80	0
„ trough	9	8	Pickaxe	7	4
Tent (complete)	41	0	Shovel	6	8
„ poles (5 in number) ..	24	0	Store bag	15	8
Coverlet	30	4	Cooking gear	29	0
Extra coverlet	22	10	Cook's bag	10	0
Lower robe	22	0	Gun and ammunition	15	0
Canvas floor cloth	15	0	Cook's boots	1	8
Sail	9	12			
8 Sleeping bags	64	0	Constant weights	533	14

"BLOODHOUND."

	lbs.	oz.		lbs.	oz.
Sledge (complete)	39	0	Store bag	12	0
„ Trough	5	12	4 Sleeping bags	34	0
Tent (complete)	29	0	4 Knapsacks	32	0
„ Poles, 5 in number ..	23	0	Guns and ammunition ..	22	0
Coverlet	15	8	7 days' provisions (including packages)	95	0
Lower robe	14	12	6 days depot for 8 men ..	85	0
Extra coverlet (lower robe) ..	14	8	10 lbs. bacon for depôt ..	16	0
Sail	7	8	48 lbs. of preserved beef for depôt	60	0
Floor cloth (sail)	7	8			
Pickaxe	7	4			
Shovel	6	8			
Cooking utensils and cook's bag	23	0		549	4

Being for 4 men, 137½ lbs. per man.

WEIGHT OF WEEKLY BAGS CONTAINING DRY PROVISIONS.

"MARCO POLO."

	lbs.		lbs.
No. 1 bag (including bacon) ..	114	No. 6 bag	98
„ 2 „ do. ..	126	„ 7 „	98
„ 3 „ do. ..	120	„ 8 „	98
„ 4 „	98	„ 9 „	95
„ 5 „	98	„ 10 „ (including lime juice, &c.)	106

"VICTORIA."

	lbs.		lbs.
No. 1 bag (including bacon) ..	103	No. 6 bag	81
„ 2 „ do. ..	113	„ 7 „	83
„ 3 „ (with 6 lbs. bacon) ..	92½	„ 8 „	83
„ 4 „	83	„ 9 „	81
„ 5 „	85	„ 10 „	82½

	lbs.
Amount of pemmican already advanced	952
Required for the consumption of the crews of the "Marco Polo" and "Victoria"	1137½
Required to leave the ship with	185
Amount of bacon already advanced	216
Required for our consumption	297
Required to take from the ship	*81

* Stowed in the weekly bags.

WEIGHTS ON LEAVING SHIP.

"MARCO POLO."

	lbs.		lbs.
Constant weight	1,536	No. 3 bag	120
10 weeks' rum and spirits of wine	182	„ 4 „	98
Pemmican	85	„ 10 „	106
No. 1 bag	114		
„ 2 „	126		2,367

Dragged by 10 men — 236½ lbs. per man.

"VICTORIA."

	lbs.		lbs.
Constant weight..	1114	No. 2 bag	113
10 weeks' rum and spirits of wine	152	,, 3 ,, ...	92
Pemmican	70		1,644
No. 1 bag	103		

Being 235 lbs. per man.

"BULLDOG."

	lbs.		lbs.
Constant weights..	545	No. 5 bag "Victoria"	85
14 days' provisions (including packages)	304	,, 6 ,, ,, ...	81
No. 5 bag "Marco Polo".. ..	98	,, 9 ,, ,, ...	81
,, 6 ,, ,, ,, ...	98		1,389
,, 9 ,, ,, ,, ...	97		

Dragged by 6 men — 231½ lbs. per man.

"ALEXANDRA."

	lbs.		lbs.
Constants	534	No. 4 bag "Victoria"	83
14 days' provisions	304	,, 7 ,, ,, ...	83
Pemmican	30	,, 8 ,, ,, ...	83
No. 7 bag, "Marco Polo" ..	98	,, 10 ,, ,, ...	82
,, 8 ,, ,, ,, ...	97		1,394

Dragged by 6 men — 232⅓ lbs. per man.

WEIGHTS ON PARTING WITH SUPPORT SLEDGES.

"MARCO POLO."

	lbs.		lbs.
Constants	1,536	No. 9 bag	95
9 week's rum and spirits of wine ..	166	,, 10 ,, ...	106
No. 2 bag	126	Pemmican for 1 week, for 9 men	47
,, 3 ,, ...	120		2,686
,, 4 ,, ...	98	Pemmican for 1 week for 9 men ..	42
,, 5 ,, ...	98		2,728
,, 6 ,, ...	98		
,, 7 ,, ...	98		
,, 8 ,, ...	98		

Being for 12 men 227 lbs. per man.

"VICTORIA."

	lbs.		lbs.
Constant weight	1,114	No. 5 bag	85
9 week's rum and spirits of wine..	138		1,626
No. 2 bag	113		
,, 3 ,, ...	92		
,, 4 ,, ...	83		

Being for 7 men 232 lbs. per man.

SUPPORT SLEDGE AND LEADER.

	lbs.		lbs.
Constant weight	140	Bacon	216
No. 6 bag, "Victoria"	81	Pemmican	959
,, 7 ,, ...	83		1,726
,, 8 ,, ...	83		
,, 9 ,, ...	81		
,, 10 ,, ...	83		

Being for 8 men 216 lbs. per man.

CONTENTS OF STORE BAG.

Two sail needles and palm, 1 lb. of twine, sewing needles and thread, spunyarn, 4 spare hide lashings, 1 tent, and 2 clothes brushes, pricker, 2 spare drag belts, spare wick for spirit lamp, record cases, matches, candles, beeswax, lever knife, saw, snow knife, awls, waxed ends, spare soles,&c., a strand of yarns, some white line and spare canvas, and 2 spare uprights, and a packet of nails.

For the support sledges, the contents of the store bag have been slightly reduced.

CONTENTS OF CARPENTER'S BAG.

One hammer, 1 gouge, 1 gimlet, 1 chisel, 1 rove punch, 1 punch, 1 pair of cutters, a packet of nails, lead for boats, fearnought, and grease.

THE COOK'S BAG CONTAINS.

Pemmican chopper and board, pannikins, funnel, measures, ladle, present use matches, salt, pepper, and daily allowance of stearine.

A. H. MARKHAM,
Commander.

H.M.S. "Alert," Floeberg Beach,
July 1st, 1876.

Sir,

I have the honour to submit for your information a detailed account of my proceedings whilst engaged in carrying out the orders conveyed to me in your letter dated April 3rd, 1876.

On perusing the enclosed, which is an abstract from my journal during the period of my absence, you will perceive that, owing to obstacles which to be realized must be seen and encountered, and the dire disease that afflicted every single individual, with the exception of the officers, composing my party, we were unable to attain such a high latitude as was hoped for and anticipated. But although it has not pleased Almighty God that we should achieve the success that we all so ardently desired, still, in justice to those brave fellows, my companions, who, suffering severe bodily pain and enduring hardships and privations of no ordinary nature, persevered so cheerfully, willingly, and resolutely, without a murmur—without a complaint—all animated by the same praiseworthy zeal and devotion for the furtherance of the enterprize, I feel it my bounden duty to bring before your notice the main causes and reasons for our failure, in attempting to carry out the duties that devolved upon us.

In the first place, we were compelled, during the entire period of our absence, to drag three sledges, having for this purpose only two sledge crews. Until they were considerably lightened the heavy nature of the road necessitated each sledge being drawn by the whole force, entailing five journeys over the same road; so that for each mile the sledges were advanced, a march of five miles had to be undertaken by the party.

In the second place, the weights, instead of diminishing, gradually increased as the several men sickened and were placed on the sledges. Those that dragged were also much debilitated and weakened by loss of appetite, and the terrible ailment with which they were afflicted, and these were eventually reduced to six individuals.

And, lastly, the continual road-making through incessant fringes of hummocks of enormous size and great extent, and the very deep snow drifts, over and through which the sledges had to be dragged, to say nothing of the absence of floes of any magnitude, rendered the work inconceivably arduous and laborious.

You, Sir, who are fully aware of the obstacles that we had to contend with, can realize the difficulties with which we were surrounded; but I feel it impossible for my pen to depict with accuracy, and yet be not accused of exaggeration, the numerous drawbacks that impeded our progress. One point, however, in my opinion, is most definitely settled, and that is, the utter impracticability of reaching the North Pole over the palœocrystic floes in this locality; and in this opinion my able colleague, Lieutenant Parr, entirely concurs. I am convinced that with the very lightest equipped sledges, carrying no boats, and with all the resources of the ship concentrated in the one direction, and also supposing that perfect health might be maintained, the Latitude 83° 20′ 26″, attained by the party I had the honour and pleasure of commanding, would not be exceeded by many miles, certainly not by a degree. For a single sledge to attempt such an undertaking would, I conceive, be most injudicious; the mutual assistance that would be derived from two or three travelling in company would render the progress more rapid, and the work less irksome.

Although the actual distance that we advanced in a northerly direction appears

almost insignificant, I beg to refer you to the end of my journal, where is stated the number of miles made good, and the number actually traversed by us, by which it will be seen that from the time of leaving the ship until our return we had marched, over the roughest kind of travelling imaginable, a distance of over 520 geographical miles, equivalent to 600 English statute miles.

It may be necessary for me to offer some explanation as to why, with so many sick men on the sledges, I did not immediately turn back and endeavour to reach the ship as speedily as possible. To this my reply must be, that we were for some considerable time totally unacquainted with the character of the malady with which our party were attacked, and that we naturally concluded they were suffering only from swollen knees and ankles, which we were aware was of frequent occurrence amongst the sledging crews of former expeditions, and was only what we had been led to expect; but we hoped, with a little rest and judicious treatment, they would soon recover and be able to resume their places on the drag-ropes. The short distance also that we were from the land was another reason for not turning back, for we felt confident of being able to reach the depôt in a few days, provided our sick list did not increase at an alarming rate, little dreaming that the entire party would be afflicted and rendered nearly helpless—a case without a precedent. I may perhaps mention that the men themselves, before the nature of the disease was communicated to them, regarded their ailment as only temporary; and I must say, in justice to themselves, that they shared, equally with their officers, the same eager desire to advance and carry out, to the utmost of their powers, the charge entrusted to them.

I observed no signs that would lead me to suppose that any disruption of the ice was to be feared before the middle of June, although between the hummocks and snow drifts during the latter part of May a great deal of sludge had formed, and in one place, whilst crossing a belt of hummocks, the ice was so weak that our heavy sledge broke through, and was with difficulty dragged out of danger. This was doubtless caused by some slight movement amongst the hummocks, in all probability due to tidal influence.

The floes abreast and to the northward of Cape Joseph Henry, are decidedly of a more ponderous nature than those in the neighbourhood of the "Alert's" winter quarters, though of less superficial area; rarely did we meet with any extending a mile in one direction, and never for more than a mile and three-quarters. During the last ten or fifteen days of our outward journey floes were few and far between, and it might almost be said that our road lay entirely through hummocks and deep snow drifts. It is impossible for us to estimate, or even to hazard an opinion, regarding the thickness of what we termed the palœocrystic floes, having no foundation to form any conjecture upon; on one occasion, at the edge of a large floe, bounded by young ice, the perpendicular height from the top of the floe to the surface of the young ice was measured, and found to be from 5 feet 6 inches to 6 feet 10 inches, but we had no opportunity of measuring the height of the heaver and larger-sized floes.

The highest mass of hummocks measured was 43 feet 2 inches, but many hummocks were observed and floe-bergs similar to those abreast of the ship which exceeded that height, and were estimated to be between 50 and 60 feet. On the heavier floes were high hillocks, apparently formed by snowdrift, the accumulation probably of years, resembling diminutive snow mountains, and varying from 20 to over 50 feet in height.

Numerous streams and patches of young, or one season's ice, were met with encompassing some of the larger floes, affording us, when they trended in the right direction, good travelling. The presence of this young ice would lead one to the conclusion that an annual disruption of the pack is an occurrence to be apprehended.

From Depôt Point to our highest northern position, the sastrugi, or frozen snow ridges, were formed in a north-west and south-east direction, indicating a north-westerly wind as the prevalent one. Occasionally, however, the sastrugi were observed formed in a different direction, but these exceptions may be attributed to the floes having been in motion subsequent to the formation of the snow ridges.

The opportunities for observations on the transformation of snow into ice on the surface of the floes were rare, and only occurred when a floe appeared to have been recently broken up, and without having had hummocks and snowdrifts piled round its edges. In these cases, the section of the snow was as sharp as that of the ice, and followed all its irregularities.

Lieutenant Parr was most assiduous in his researches into this interesting subject, and I am much indebted to him for placing at my disposal the information he acquired on this matter.

The general depth of the snow was from 2 feet 6 inches to 3 feet, the upper portion, underneath the surface crust, consisting of loose grains of about the size of rifle fine-grain

powder, and without the least coherency; these gradually increased in size, till about two-thirds of the way down they were as large as rifle large-grain powder, but still separate. Below this, however, the grains began to unite and to form very porous ice, till, at the actual point of junction with the floe, it was very difficult to draw the line of demarcation. In all cases the ice on the surface of the floes had evidently been formed in the same manner, for it was full of air holes, though not nearly to so great an extent as that which was in process of formation.

The conversion of snow into ice was not confined to the surface of the heavy floes, for in making our roads through the hummocks, we frequently came across pieces of snow-ice which had been formed round some of them, and used it for cooking purposes.

Digging down into the snow gave the same results, for we could always get the porous ice, and found it very convenient for cooking. On one occasion the surface of a small floe on which we were encamped was composed of separate pieces of ice, about the size of a penknife, placed end up, and covered with snow, but without apparently being joined together in the slightest degree.

In one case, also, we found a section of a drift 7 feet thick at the highest point, which was divided into three equal parts by two layers of ice, half an inch thick; the lower portion being nearly converted into ice, the middle not to such an extent, while the upper had only just commenced. On some of the floes large isolated pieces of ice would be protruding, and in these cases, when tried for cooking purposes, were found perfectly fresh; though they must evidently have originally been salt, and had no appearance of having had snow drifted up round them, which must either have been the case, or else the briny matter must have melted out of them during previous summers and left that which was fresh. How far the thaw affected the snow on the floes we could not tell, for though the hummocks had got soft before we were clear of them, the snow seemed to be very little affected.

It was our intention to have devoted more time to these and other observations on our return journey, when the weather would have been warmer and more time would have been at our disposal; but the unforeseen circumstances arising out of the sickness with which our party were attacked, entirely precluded all further investigations into these important and interesting matters.

Deep sea soundings and temperatures, as well as magnetic observations for inclination and total force, were obtained at our most northern position—the results will be forwarded. Specimens of the bottom at the depth of 72 fathoms, and crustaceans from the same source, together with mud and discoloured ice, have been collected at different times, and have been placed in the hands of Captain Feilden for the purpose of microscopic investigation.

During the time of our absence from the ship we suffered little from snow-blindness, indeed were comparatively free from it. I attribute our exemption from this painful malady entirely to the constant use of the goggles; those supplied to the Expedition by Gould and Porter being decidedly superior to all others. On our outward journey, the time selected as the fittest for marching was between noon and midnight, whilst on the return journey night travelling, between 6 P.M. and 6 A.M., was strictly adhered to. These marching hours were adopted in order to keep the sun as much as possible at our backs, and were found to answer very well.

The weather was, on the whole, extremely cold, the month of April particularly being so, no temperature above zero was recorded until the 28th of that month—the lowest observed, being $-45°$, and the highest $+7°$. In May the temperature gradually rose, the lowest registered being $-17°$, and the highest $+25°$. During this month, and the first week in June, we experienced very foggy and misty weather. Snow fell on twenty-seven days, principally in the months of May and June. The lowest temperature recorded inside the tent, after supper, when all were in their bags, was $-25°$, the highest $+82°$!

Unlike our experience during the winter on board the "Alert," gales of wind caused the temperature to fall and not to rise, no matter the quarter whence they blew. This made marching with any wind a most unpleasant and disagreeable proceeding, engendering numerous superficial frost-bites about the face and hands.

The clothing in constant use by the men was the same as that worn when leaving the ship, with perhaps a slight diminution of foot-gear, and a knitted guernsey less. These guernseys appeared to be of a very inferior quality, and were soon worn out; the duffle jumpers were only used at night-time, except by the sick, who wore them continuously. Moccasins were in use the whole time.

In consequence of the loss of appetite complained of by all, upwards of 300 lbs. of pemmican were unconsumed out of our allowance. The sweet description of pemmican was

infinitely preferred to the plain. I cannot say too much in favour of the mid-day tea, provided too much time is not expended in obtaining it; we all looked forward to it as the best meal of the day, and the men worked better, and appeared to possess more staying powers after it, than after breakfast. I am most strongly of opinion that it should be generally adopted by all sledging parties.

The large over-all fearnought boots made for the cooks, by your directions, proved of great service, as they not only kept their feet warm, but they enabled them to "light up" for breakfast with more rapidity, as they were slipped on without waiting to shift foot-gear.

The durability of the sledges was all that could be desired; the improved manner in which the uprights were connected and secured to the bearers are well worthy of notice, and fully realised our expectations, although subjected to a very severe trial.

Where all did their duty so nobly and so bravely, it is impossible to make a selection. I shall therefore content myself by bringing before your notice the exemplary conduct of the two sledge-captains, Thomas Rawlings and Edwin Lawrence, in both of whom Lieutenant Parr and myself placed the utmost confidence; the very economical way in which they regulated the issue of provisions, suffering no waste, was beyond all praise. The cheerful, willing, and contented spirit displayed by the whole party, and the hearty manner in which they worked, is most commendable, and it affords me much pleasure in being able to testify to the fact.

Although it appears to me to be a work of supererogation to dwell in any way upon the very zealous and hearty co-operation that I received, during a most trying period, from Lieutenant Parr, still I feel that my report would be incomplete if I omitted bringing before your notice the very great aid I derived from his advice and energy. Sharing equally with the men the laborious exertions of road-making and the arduous toil of the drag ropes, he was most assiduous in his endeavours to assist me in every conceivable manner, either in the selection of the road, the redistribution of weights on the sledges, the care of the sick, or in the manifold duties connected with our enterprise. The greatest praise that I can accord him is to say that he more than fully realised the anticipations you had formed of him. His wonderful march to the ship, from the depôt in the vicinity of Cape Joseph Henry, speaks for itself.

I have the honour to be, Sir,
Your obedient Servant,

Captain George S. Nares, R.N., F.R.S.,
H.M.S. "Alert."

A. H. MARKHAM,
Commander.

JOURNAL.

Weights, on leaving the ship, carried by the Northern Division of sledges :—

"Marco Polo"	(12-man sledge),	2,367 lbs.,	or $236\frac{3}{4}$ lbs. per man.
"Victoria"	(8-man sledge)	1,644 ,,	or 235 ,,
"Bulldog"	,,	1,389 ,,	or $231\frac{1}{2}$,,
"Alexandra"	,,	1,394 ,,	or $232\frac{1}{3}$,,

On reaching Depôt Point, 244 lbs. of pemmican were equally distributed amongst the four sledges, which, taking into consideration the amount of provisions and fuel expended during the march to that place, again increased the weights to the same amount as on leaving the ship.

On leaving the depôt at Cape Joseph Henry, the weights on the sledges were as follows :—

See Summary of Equipment and Distribution of Weights, page 122.

"Marco Polo"	2,728 lbs.
"Victoria"	1,626 ,,
"Support"	1,725 ,,

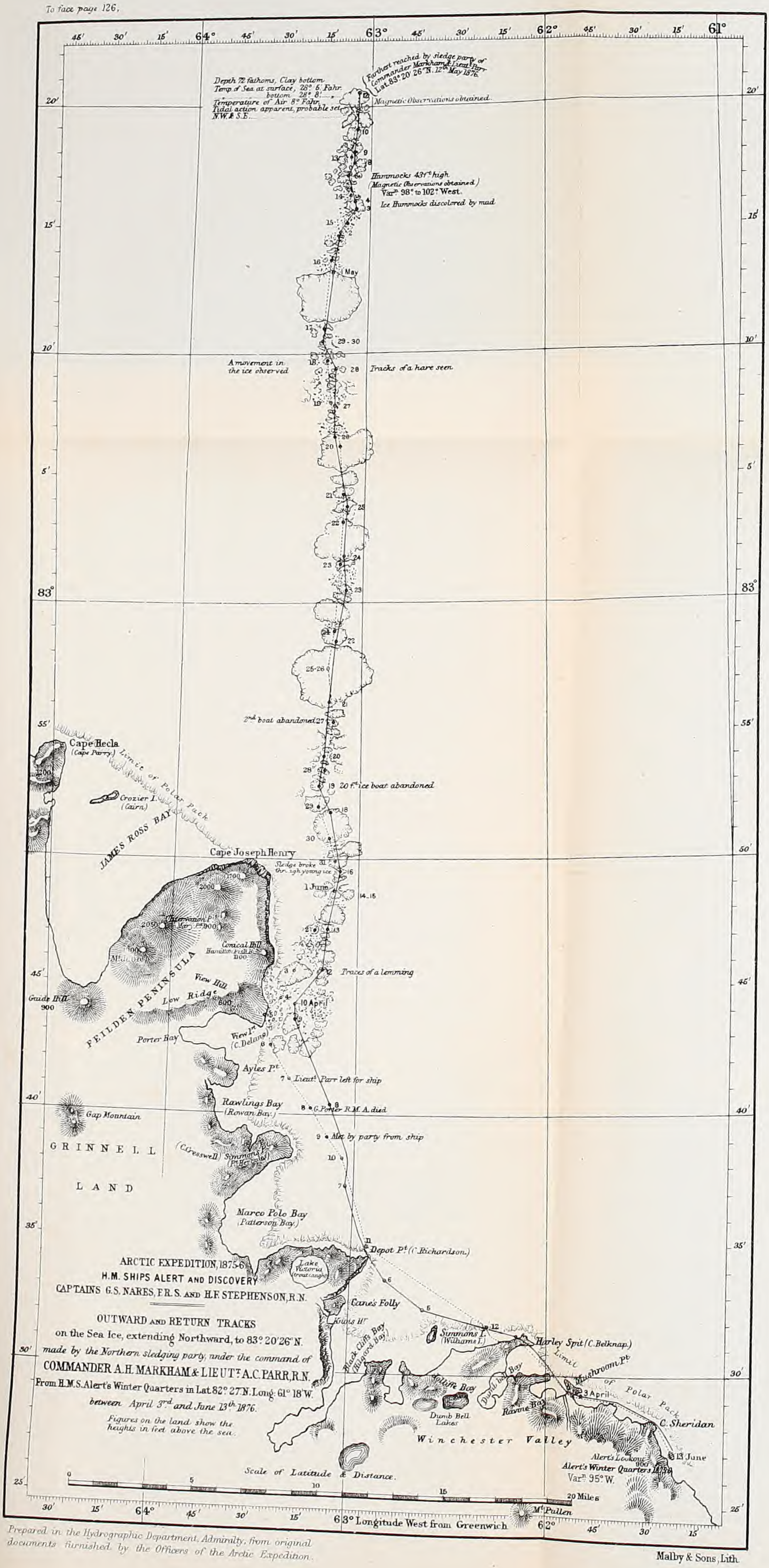
being a sum total of 6,079 lbs., to be dragged by 15 men—equal to 405 lbs. per man.

Monday, April 3rd.

N.W. 1 o.m.: b c.
Temperatures of air:—
11 a.m.—33°
3 p.m. —32
8 p.m. —31
Inside tent:—
9 p.m. —15°
mid. —15
6 a.m. — 8

Left the ship at 11 a.m. The northern division of sledges under my command, consisting of the "Marco Polo," "Victoria," "Bulldog," "Alexandra," and "Bloodhound;" the western division, under the command of Lieutenant Aldrich, consisting of H.M. sledges "Challenger" and "Poppie" in company. The travelling by no means good, snow deep, and the sledges dragging very heavily. This being our first march, and the men showing signs of fatigue, a halt was called at 5.30, and the tents pitched on the eastern side of the neck of land connecting Mushroom Point with the main. Men in capital spirits. Course and distance made good, N.W. 6′. Hours on the march, $5\frac{1}{4}$. Halted for lunch, $\frac{3}{4}$.

To face page 126.



Prepared in the Hydrographic Department, Admiralty, from original documents furnished by the Officers of the Arctic Expedition.

Malby & Sons, Lith.

See Sum
Equipme
Distributi
Weights,
122.

N.W. 1 o
Temperat
air :—
11 a.m.
3 p.m.
8 p.m.
Inside te
9 p.m.
mid.
6 a.m.

Tuesday, April 4th.

The cooks were called at 5 a.m., and breakfast was ready by half-past six to our great relief, all having passed a cold, wretched, and sleepless night, temperature inside our tent being −15°. Few, however, were able to partake of their pemmican either last night or this morning, and there was little demand for the "blue."* Dressing and undressing is decidedly the most disagreeable part of sledging; although our foot gear was placed inside our sleeping bags nothing thawed, everything was frozen quite hard in the morning; the gauntlet mitts, or "hand stockings," as they are called by the men, are admirable for the feet at night-time, but they do not suffice to keep them warm. Struck camp, packed sledges, and commenced the march at 7.30. Double banked all the sledges over the gap of land inside Mushroom Point, which fortunately for us had a good covering of snow, nevertheless, we found it hard work with our heavy sledges, but we save considerably by adopting this route instead of going round the point. The 12 man sledge, with the 20 ft. ice boat on it, dragging very heavily, the small sledge "Bloodhound" was taken in tow, their crew assisting to man the drag ropes of the larger sledge; this enabled us to get on a little better. At eleven o'clock halted for lunch at the point forming the west extreme of Ravine Bay. Angles at this position:—

Harley Spit	66° 30′.
Snow House Point	29
Centre Mount Pullen.. ..	294
Cairn on Mushroom Point ..	206
Extreme of land	200° 30′.

Calm o.s.: b.c.
Temperatures of air:—
9 a.m. −31°
3 p.m. −27
8 p.m. −35
Inside tent:—
9 p.m. −22
mid. −25
6 a.m. −21

Men are working well, but the travelling on the floe is extremely heavy, and we are compelled to double-bank all sledges, thereby making but slow progress. Renewed the march at noon. The travelling round and beyond Harley Spit excessively heavy and laborious. Men getting tired, halted at 4.45, and camped about midway between Harley Spit and the boats. John Radmore had all the toes on his left foot frost-bitten, but, fortunately, it was taken in time and circulation restored. Everything frozen perfectly hard. To use Admiral Richards' simile, our sleeping-bags resembled sheet-iron, whilst the currie paste, as our cook observed, was exactly like a piece of brass, and was equally hard. We were all hungry enough to eat our full allowance of pemmican at supper, and enjoyed it. Course and distance made good, W.N.W. six miles. Distance marched, ten miles. Hours on the march, eight and a-half; at lunch, three-quarters.

Wednesday, April 5th.

Although the temperature was lower in our tent last night (as low as −25°) than on the previous night, we all slept a little more comfortably, or rather a little less uncomfortably, though deprived of all feeling in our feet. Started at 8.30 a.m. travelling much the same as yesterday, therefore compelled to advance in the same manner, that is sledges double-banked. Walked on to where the boats were left last Autumn, with Aldrich and Parr, but they were found completely buried in the snow-drift, no traces being visible. Ascended the hill at whose base the boats were placed, and selected a route across the pack to Depôt Point. Returned to the sledges and took to the ice at 10 o'clock, hoping to get a good lead and thus save a few miles. The men appear a little stiff and complain of having suffered a good deal last night from pain in their limbs and are to day suffering from great thirst.

East 1 b.
Temperatures of air:—
9 a.m. −32°
3 p.m. − 39
8 p.m. −41
Inside tent:—
9 p.m. −23°
mid. too cold
6 a.m. −21

A wolf's track, seen each day since we left the ship, has been the only vestige of animal life observed; after lunch leaving the sledges to proceed with Aldrich and Parr, I returned to the shore with Mr. White and a couple of men, for the purpose of ascertaining the exact position of the boats, but though we dug about with pick and shovel for some hours we failed in our attempt to find them. Left a cairn to denote their whereabouts and rejoined our party. Halted at 6.30, and encamped on the floe a short distance from Simmons Island. The travelling has not improved, and the temperature has been as low as −45°. Everything very cold and uncomfortable. Angles at camp:—

Conical Peak ..	75°	30′
Left Pap ..	36	30
Mount Pullen ..	252	45
Extreme of land ..	200	0

Course and distance made good, North 4 miles. Distance marched, 12 miles. Hours on the march, 9. At lunch, 1.

Thursday, April 6th.

Another cold sleepless night over. Commenced the march at 8.30. A beautifully sunny day, but with a temperature at 35° below zero. Everything frozen stiff and hard. Dressing by no means an easy operation. Sledges double banked as before. Progression

* "Blue" is the surplus remaining after each man has received his allowance.

slow. Halted for lunch at 12.30. Some of the "Challenger's" men being seedy, Aldrich was compelled to encamp. At 1.30 proceeded with the Northern Division. Reached a stream of young ice extending to Depôt Point, the travelling on which being good, enabled us to single bank the crews, arriving at Depôt Point at 5.30 off which we halted and camped on the floe. Found the depôt correct. Took from it 244 lbs. of pemmican, and deposited six days' provisions for eight men. Giffard came up with the sledge "Poppie," and encamped near us. James Berrie (Ice Quarter-Master), his sledge captain, being generally indisposed, it was thought advisable that he should be sent back to the ship; he therefore returns to-morrow with the "Bloodhound," George Cranstone (A.B.) from the sledge "Bulldog" filling up the vacancy in the "Poppie's" crew, and William Malley (A.B.) from the "Bloodhound," taking his place in the "Bulldog." Course and distance made good, North 5 miles. Distance marched, 10. Hours on the march, 8. At lunch, 1.

Calm b.
Temperatures of air:—
9 a.m. −37°
3 p.m. −31
8 p.m. −38
Inside tent:—
9 p.m. −15°

Friday, April 7th.

The sledge "Bloodhound" having fulfilled the duties entrusted to her, she was despatched to the ship at 8 a.m. Gave her three cheers on parting. George Bryant (Captain Fcle. "Discovery") in charge, has quite borne out all my expectations as to being a zealous, hard-working, and cheerful petty officer. Started with the Northern Division at 8 a.m.; a beautiful day, but *very* cold. A few slight frost-bites were sustained yesterday but quickly restored. Daniel Harley rather severe in the big toe. Rounded Depôt Point. The travelling to-day is a foretaste of what we are to expect; heavy floes fringed with hummocks, through and over which the sledges have to be dragged. Moss was fortunate enough to shoot a hare on Depôt Point, which is to be reserved as a *bonne bouche* for us when we attain our highest latitude. Land very much distorted by mirage. 5.45 halted and camped for the night on a floe off Cape Hercules. Clouds banking up ominously betoken wind or fog. Temperature remains extraordinarily low. Aldrich's sledges coming up behind, and camping about half a mile astern of us. Angles at Camp:—

Calm b.c.
Temperatures of air:—
9 a.m. −41°
3 p.m. −38
8 p.m. −30
Inside tent:—
9 p.m. −14
6 a.m. −15

Conical Hill	83°	
Joseph Henry Peak..	78	30′
Left Pap	20	
Marco Polo Valley ..	354	
Depôt Point.. ..	264	
Mount Pullen ..	251	30

Course and distance made good, North four and a half miles. Distance marched, fourteen miles. Hours on the march, nine. At lunch, three-quarters.

Saturday, April 8th.

Started at 7.30. Men very cheerful and in capital spirits. Contrary to our expectations, it is a charming day, although the temperature persists in remaining low. Care has to be taken in selecting the road so as to avoid the hummocks as much as possible; occasionally we are brought to a standstill by a belt of more than ordinarily large ones, through which we have to cut a road with pickaxes and shovels. Sledges double-banked as before. The large sledge, on which is the 20ft. ice-boat, drags very heavily. This is caused by the overhanging weight at the two extremities. Glare from the sun has been very oppressive; the snow in places resembles coarse sand, and appears more crystallized than usual. Halted at 6.45, and camped for the night. Aldrich about half-a-mile behind us. A few of the party, including Parr and myself, suffering from snow-blindness. No angles taken in consequence. The sun is now above both horizons, so we get continuous day. Course and distance made good, North 3 miles. Distance marched, 10. Hours on the march, 10½. At lunch, ¾.

Calm b.c.
Temperatures of air:—
9 a.m. −31°
3 p.m. −25
8 p.m. −29
Inside tent:—
9 p.m. −13
6 a.m. −14

Sunday, April 9th.

Struck tents and commenced the march at 8. Same system of double banking the sledges continues. Parr's snow-blindness is no better, mine no worse. The snow goggles are worn by all and certainly afford relief to the eyes. Moss is rendering valuable service by assisting me in the selection of a road—no easy task whilst going through hummocks. Although the temperature is very low the sun has sufficient influence to dry our blanket wrappers and other gear; the yards of the boats being very convenient for the purpose of tricing up our robes, &c. The snow is still very deep on the floes and between the hummocks, materially retarding our progress. Halted at 7, and encamped on a heavy floe. From its north-western edge the depôt was plainly visible; a great relief to our minds, as thoughts of its being buried in deep snow drift would frequently occur to us.

Calm b.c.
Temperatures of air:—
9 a.m. −34°
3 p.m. −27
8 p.m. −30
Inside tent:—
9 p.m. −10°
mid.m.
6 a.m.

Angles at encampment:—

N.E. extreme of Conical Hill ..	93°
Depôt (about)	76
Left Pap	33 30′
Mount Pullen	253

Course and distance made good, North 4 miles. Distance marched, 13 miles. Hours on the march, 10. At lunch, ½.

Monday, April 10th.

At 8.30 a.m., leaving the tents pitched, and the four cooks to take care of them with Parr, who is still suffering acutely from snow blindness, we started with the remainder of the party and an empty sledge for the depôt, distant about two miles, Aldrich and some of his men accompanying me. We experienced heavy work in cutting a road through the line of shore hummocks that gird the coast, and did not succeed in reaching the depôt until eleven o'clock. The pemmican tins were opened, the contents packed on the empty sledge, and a cairn constructed with the tins on the site originally occupied by the depôt, as a mark where in future all provisions for our use are to be deposited. Sending the party back to camp in White's charge, Aldrich, Giffard, Moss and myself ascended View Hill (650 feet), whence we obtained a good look-out. The prospect was anything but cheering. To the northward was an irregular sea of ice, composed of small floes and large hummocks. Our anticipations of slow travelling and heavy work seem about to be realized. The sun was so powerful that the snow was thawing, and the water trickling down on the southern side of the hill. Angles from the summit of View Hill:—

Conical Hill ..	105° 15′
Observation Peak..	63 50
West Pap ..	340 0
Mount Pullen ..	254 20
Cape Rawson ..	240 45

Calm b. c.
Temperatures of air:—
9 a.m. −32°
3 p.m. −18
8 p.m. −17
Inside tent:—
9 p.m. − 7°
6 a.m. 0

Descended the hill, overtook our party, and returned to camp at 3.30. Struck tents and shifted our camp about a mile to the northward, pitching our tents alongside of Aldrich's party. Commenced stowing our sledges. We shall start to-morrow morning with provisions complete for 63 days. Our weights are exactly as they should be, namely, 6,080 lbs. to be distributed on the three sledges—the 12-man sledge will be loaded to 2,728 lbs, and the other two sledges to 1,726 and 1,626 lbs. respectively. Thus loaded, the sledges will drag uncommonly heavy, and over the rough hummocks we are certain to encounter our only mode of advancing will be a system of double banking, which simply means one mile made good for every five actually marched. If we accomplish two miles a day it will be a fair day's work. On shore we observed numerous traces of hares and ptarmigan, but although Moss followed up the trails of the former, his attempts to obtain any were not crowned with success. Course and distance made good, 1 mile. Distance marched, 7 miles. Hours on the march, 6. Hours detained at depôt, 4. At lunch, 1.

Tuesday, April 11th.

S.W. 2. 1.
Calm o.s.: b.c. o.s.
Temperatures of air:—
9 a.m. −15°
3 p.m. − 3
8 p.m. − 0
Inside tent:—
9 p.m. +16°
mid. +12
6 a.m. +12

Started at 7 a.m., leaving the tents belonging to the two support-sledges pitched, but taking their crews to assist in dragging our sledges. Elias Hill (Private R.M.L.I.), one of the "Challenger's" crew, being unfit, from sickness, to proceed, David Mitchell (A.B.), from the sledge "Bulldog," was appointed in his place. A dull, overcast day. Snow falling. I was again greatly indebted to Moss for his efficient aid in assisting me to choose a road for the sledges, Parr being still laid up with snow blindness, and my sight "not quite the thing." Halted amongst the hummocks for lunch at noon. Aldrich has very wisely determined to return to the land and try his luck through the snow valley, instead of rounding Cape Joseph Henry. One o'clock, displayed all colours, and parted company with Aldrich's division and our two supporting sledges amid much cheering. They were soon lost sight of amongst the hummocks. Parr in advance with half a dozen men cutting a road with pickaxes and shovels, the remainder of the men dragging up the light sledges singly, all hands having previously advanced the heavy sledge. Got on to a heavy floe and then in amongst a mass of heavy hummocks, through which appeared no road or outlet, but the steady and persevering exertions of Parr and his roadmakers performed wonders, and the sledges were soon travelling over a road that had looked before impenetrable and impassable. The floes are small, but very heavy. It is difficult to estimate their thickness, but it must be very considerable. They appear to have had a terrible conflict one with another, the result being what we are now

encountering, namely, a great expanse of hummocks varying in height from 20 feet to small round nubbly pieces over which we stagger and fall. Between these hummocks the snowdrifts are very deep, and we are continually floundering up to our waists, but the men struggle bravely on. Possibly when we leave the vicinity of Cape Joseph Henry, and get well clear of the land, we may experience better travelling, larger floes and less snow. One thing is pretty certain, we cannot have much worse, and this is a consolation. At 2 p.m. the thick weather and snow cleared off and the sun shone out brightly, the temperature rising as high as − 3°, but at 5 o'clock it again became dull and overcast, and snow commenced falling. 6 p.m. stopped and encamped amongst the hummocks, after a very hard and weary day's work. The men appear a good deal done up. The road making was incessant the whole afternoon. Weather too thick to obtain a round of angles. Course and distance made good, North 2¼ miles. Distance marched, 10. Hours on the march, 10. At lunch, 1.

Wednesday, April 12th.

An unexpected but most gratifying change of temperature caused us to pass a comparatively comfortable night; temperature inside our tent as high as +16°, and during supper rose as high as +22°. At 9 a.m., after breakfast, commenced with half a dozen road-makers cutting a road through the hummocks, leaving the remainder of the party to strike the tents, pack, and bring up the sledges one by one as far as the road was practicable. Being a beautifully bright sunny day, the tent robes and other gear were triced up to the masts and yards to dry. The fine weather is very acceptable to us, and it will also enable our support sledges to return to the ship easily and quickly. Parr's eyes are improving, and he now works like a slave with pickaxe and shovel, working with and superintending the labours of the road-makers. Our progress is necessarily very slow; the obstacles we have to contend with are numerous and difficult to overcome, but they yield slowly but surely to the dexterous blows of our energetic labourers. Latitude at noon by observed Meridian Altitude, 82° 44′ 15″. This is a little aggravating, as we imagined ourselves to be two or three miles further to the northward. Shortly after noon, observed a man walking round the base of View Hill, distant about two and a quarter miles, who we naturally concluded was Aldrich walking ahead of his sledge. After lunch emerged from the hummocks on to a small floe, and then into another mass of hummocks, having only made about half a mile during the forenoon. Angles taken at 2 p.m.:—

Calm b. c.
Temperatures of air:—
9 a.m. −13°
3 p.m. − 8
8 p.m. −33
Inside tent:—
9 p.m. − 5
6 a.m. + 18

Cape Joseph Henry ..	74°	30′
Joseph Henry Peak ..	69	00
Observation Peak.. ..	57	30
Pap (?)	337	30
Mount Pullen	255	30

The surface snow on the floes sparkles and glitters with the most beautiful iridescent colours, the ground on which we walk appearing as if sprinkled with bright and lustrous gems; diamonds, rubies, emeralds, and sapphires being the most prominent. At 3 p.m. succeeded, by aid of pick and shovel, in cutting a road through a belt of hummocks of from seven to twelve feet high, and experienced slightly better travelling, though still through hummocks, enabling us, however, to make considerably more progress. Observed the fresh traces of a lemming. It is strange the little creature should wander so far from the land, the nearest point being quite three miles off. Opened out Cape Joseph Henry, which for the last week has been entirely concealed by Conical Hill. At 5 p.m. observed Aldrich's encampment on shore, a short distance up the Snow Valley. Crossed over some streams of young ice,* and through a long fringe of hummocks leading on to a large floe of "ancient lineage" presenting an undulating surface, and having on it diminutive ice mountains, or frozen snow drifts, from fifteen to twenty feet in height. At 7.15 halted at the edge of a belt of hummocks, through which a road was cut whilst the tents were being pitched. Camped for the night, the men being rather fatigued, having had a hard day's work. We are gradually getting into a different time for travelling, rising later and halting later in order to do so; the hours we intend adopting for our outward bound journey being those between noon and midnight, as by so doing we shall avoid having the sun directly in our faces as much as possible. The men are all well and cheerful, although we are all suffering from cracked skin, the combined action of sun and frost, our lips, cheeks, and noses being especially very sore, our faces resembling raw beef-steaks. The temperature all day has been delightful, ranging from − 8° to − 20°. Travelling through hummocks is most unsatisfactory work; it is a succession of standing pulls—one, two, three, haul! and very little result. The

* By young ice is meant ice of the previous season's formation.

snow, too, on the floes is very deep, the upper crust of which being frozen, the sledge runners break through, and sinking into the soft snow renders the dragging very laborious. Angles at camp:

Cape Joseph Henry..	67° 30′
Conical Hill..	59
Observation Peak	46
Pap (?)	335 30
Mount Pullen	256 45

Course and distance made good, North 1½ miles. Distance marched, 9′. Hours on the march, 10½. At lunch, ½.

Thursday, April 13th.

Struck camp and commenced the march at 9 a.m. Last night the temperature fell as low as − 33°, but rose again this morning as the sun gained power, sending the thermometer up inside my tent whilst we were having breakfast as high as + 32°; it was + 18° when the cooks were called.

Passed through a fringe of hummocks about 200 yards in breadth, then arrived on a fine large floe that afforded us capital travelling for about a mile due north, and then on to another long fringe of large and troublesome hummocks, until we were completely brought up at 2 o'clock by enormous masses of ice, piled up, piece on piece, to the height of over 20 feet. Through this we resolved to cut a passage, although foreseeing it would be a long and tedious job; however there appeared no other alternative, so immediately after lunch the road-makers, always supervised and headed by Parr, who is not only a first-rate engineer but also a most indefatigable labourer, set to work to cut a road, which by 6 p.m., with such resolution did they work, was completed, the sledges dragged through and on to another old floe, girt by more hummocks which were in their turn attacked by Parr and his gang, and we had the satisfaction of halting at 7.40 p.m. and encamping on a fine large floe, which promises to give us a good lead for some way to the north tomorrow. It is almost incredible with what comparative ease the obstacles we have to contend with can be surmounted. Latitude at noon by observed Meridian Altitude, 82° 46′ 6″ N. Parr, I am happy to say, has quite recovered from his snow blindness and works like a horse. At 6 o'clock we saw Aldrich's tents pitched some distance up the Snow Valley. It has been a dull cloudy day, the sun shining at intervals. In the afternoon there was a fog-bow or halo round the sun shewing the prismatic colours. Angles at camp:—

Northerly 1 cm.
Temperatures of air:—
9 a.m. −17°
3 p.m. −18
8 p.m. −27
Inside tent:—
9 p.m. − 1
6 a.m. − 1

Cape Joseph Henry	54° 45′
Joseph Henry Peak	46 30
Conical Hill	28
View Hill	327

Course and distance made good, North 2 miles. Distance marched, 9. Hours on the march, 10¼. At lunch, ½.

Friday, April 14th.

Last night, in consequence of having had a high temperature in our tent, on one occasion, when much moisture was absorbed by the sleeping bags, &c., our robes and bags were frozen so stiff and hard that caution had to be exercised to avoid their coming into contact with the face, otherwise, so rigid were they, that an abrasion of the skin would be the result; our plan is to leave the coverlets for some considerable time lying on our bodies so that they may partially thaw before being spread. Our blanket wrappers also in the morning were frozen so hard, although we had been lying upon them all night in our bags, that it was with great difficulty we could bend them over our feet. Started at 9.30 a.m. Crossed an old floe, having a deep incrustation of frozen snow on its surface, rendering the dragging very laborious, then through a belt of small hummocks, on to another fair-sized floe. These belts, or cordons, of hummocks vary in breadth from 50 and 100 yards to as much as a quarter and half-a-mile. As a rule round the larger floes appear the heavier hummocks. We have been assailed by an unpleasant nipping breeze from the northward, our faces being constantly touched up by Jack Frost. Although the sun was shining brightly, it was absolutely too cold to obtain a meridian altitude at noon, temperature being down to − 28°. We were employed, during the afternoon, in making a road through a more than ordinary broad hedge of hummocks, and pulling the sledges through, we made in consequence little head-way. The wind freshening and the weather becoming very thick, we halted earlier than we otherwise would have done, and camped on a floe at 7 p.m. It was too thick to obtain a round of angles. Many frost-bites about the face. John Shirley (Stoker), of the "Marco Polo," complaining of pain in his ankle and knee, both of which exhibited slight symptoms of puffiness, he had them well rubbed with turpentine liniment. The floes off Cape

Ny. 2 to 5 c.m. s.
Temperatures of air:—
9 a.m. −25°
3 p.m. −27
8 p.m. −25
Inside tent:—
9 p.m. − 5
6 a.m. −15

Joseph Henry, although actually smaller than those in the immediate vicinity of the ship's winter quarters, seem far more heavy and ponderous. They are in all probability reduced in size by heavy and continual pressure off the Cape. Course and distance made good, North $1\frac{3}{4}$ mile. Distance marched, 8. Hours on the march, $9\frac{1}{2}$. At lunch, $\frac{3}{4}$.

Saturday, April 15th.

Blowing a north-westerly gale, with the temperature 35° below zero, and a considerable drift, which rendered travelling quite out of the question. Extreme wretchedness and almost abject misery was our lot to-day. We derived no heat from our robes, they were frozen too hard, the temperature inside our tent being – 22°. It is rather remarkable that we have this day experienced, during a gale of wind, a lower temperature than we had during any gale the whole winter, which leads one to the conclusion that it is evident there can be no open water existing either to the northward or westward of us. By not arousing the cooks until late, we economized a meal, doing away with lunch. Shirley appears no better, his ankle much swollen and very puffy about the knee, after being dressed with turpentine liniment it was well bandaged. Too cold to write.

N.Wy. 5 to 8 o.q.z. Temperatures of air:—
9 a.m.—27°
3 p.m.—34
8 p.m.—36
Inside Tent:—
9 p.m.—22
6 a.m.—15

Sunday, April 16th.

The wind this morning was still blowing fresh, though it had moderated considerably; it was, however, so cutting and piercing, and the drift was so dense, making it almost impossible for us to see our way through the hummocks, that it was deemed more prudent and advisable to remain encamped, however unpleasant and disagreeable such a course was to all concerned. We all unanimously came to the conclusion that it was the most wretched and miserable Easter Sunday that any one of us had ever passed. 48 hours in a bag, in a gale of wind off Cape Joseph Henry, with a temperature 67° below freezing point, is not a delightful way of passing the time—sleep almost out of the question. In spite of the cold we did not omit the usual Saturday night's toast last evening; it was also the first anniversary of the Ships' Commissioning and the Captain's birthday, so of course they could not be neglected; we gave the latter three cheers, which was taken up by the "Victoria," and then we commenced to cheer each other, by way of keeping up our spirits. The keen wind touches us up unmercifully when we are compelled to go outside the tent. One of the men (William Ferbrache) had his nose rather severely frost-bitten in less than two minutes. Shirley is no better; indeed, he may be said to be worse, as he is now attacked in both legs. The treatment has been renewed. George Porter, of the "Victoria," complaining of stiff knees; they were well rubbed with turpentine liniment. At 4.30 p.m., the wind subsiding, we determined to make an effort to push on, anything being preferable to the tedium and dreariness of such forced inactivity as we were undergoing. At five, struck the tents and commenced the march. Shirley being unable to walk, we were obliged to place him on one of the sledges, keeping him in his sleeping bag, and wrapping him well up in the coverlet and lower robe. This increases our weight to be dragged, besides diminishing our strength. Crossed the floe on which we were encamped, and cut our way through a hedge of hummocks, about one-third of a mile in breadth, on to another floe of apparently great thickness. These floes, although of stupendous size regarding their thickness, are unfortunately for us of no very great superficial extent, varying only from a quarter of a mile to a mile in a north and south direction. The recent strong wind, blowing the snow from off the land to the floes, has made the travelling rather heavier than it was before. Between some of the large floes we occasionally met small patches of young ice along which the sledges ran easily and smoothly; but, alas! they are never more than a few yards in extent. Halted at 10.30, and encamped for the night on a large floe. Men appearing more done up, after lying so long idle in their bags; than if they had had a hard day's dragging.

N.Wy.5to10.c.q.z. Temperatures of air:—
9 a.m. —35°
3 p.m. —33
8 p.m. —32
In tent:—
9 p.m. —16

Beyond Cape Parry, which is at present the most distant land visible to the westward, can be seen two cloud-like objects that may be Aldrich's "Cooper Key Mountains;" but again they may be clouds or mirage. Angles at camp:—

Cape Parry	31°	15′
Cape Joseph Henry..	15	30
Joseph Henry Peak..	12	0
Observation Peak ..	360	0
View Hill	311	30
Mount Pullen ..	261	30

Course and distance made good, North $1\frac{1}{4}$ miles. Distance marched, 7 miles. Hours on the march, $5\frac{1}{2}$. Detained by bad weather, 5.

Monday, April 17th.

Cape Joseph Henry when viewed from seaward, or rather iceward, and on the bearing observed last night, presents a bold and rugged appearance, rising nearly perpendicular from its base to its bluff, a height of about 800 feet, whence it recedes, gradually ascending until it culminates in a peak about three or four hundred feet higher. It appears to be of limestone formation in regular stratifications, dipping to the southward at an angle between six and ten degrees from the horizontal. The cape itself terminates in a knife-like edge from summit to foot, very much resembling the ram-bow of an iron-clad. Conical Hill when seen on the same bearing, presents more the shape of a hog's back than a cone, and has also a bold rugged aspect. It is about the same height as the peak above Joseph Henry, and is of the same formation; but, unlike its neighbour, the striations dip to the southward at an angle between 6° and 10° from the vertical, and it has altogether a rather distorted appearance. There is a great deal of similarity in the surrounding hills, all being more or less coniform, and of nearly equal altitude—from one to two thousand feet. Commenced the march at 11·30 a.m. Shirley is no better, and has again to be put on the sledge. George Porter (Gunner, R.M.A.), one of the "Victoria's" crew, is rendered *hors de combat*, his knees being very much swelled, and is suffering a good deal of pain. A similar treatment was adopted to that followed in the case of Shirley, namely, liniment and bandages. He is just able to hobble after us, but our force is much weakened by the loss of these two men. By an Obs. Mer. Alt. taken at our camp the latitude was found to be 82° 49′ 37″. A beautifully sunny day with the temperature as high as −24°. The men are taking kindly to their goggles, rarely taking them off whilst on the march, and quite willing to put up with a little inconvenience rather than be afflicted with snow blindness. Occasionally a film forms on the glasses, but this cannot be obviated; they fully answer the purpose for which they are supplied. Alfred Pearce, A.B., was rather severely frost-bitten on one of his fingers yesterday, but circulation was quickly restored, and with the exception of a little soreness, he suffers no ill effects from it. Snow being deep, we found the travelling on the floes very heavy indeed; the large boat comes along very slowly, and it is seldom we can advance many paces without resorting to "standing pulls." Men are all working uncommonly well, my only fear being that they will over-tax their strength. Arrived at the edge of a broad belt of hummocks, through which a road had to be cut, then on to a small floe, then through more hummocks, which again had to succumb before the strenuous exertions of Parr and his untiring road-makers; then more small floes and more hummocks, and so it goes on. These hummocks consist of large fragments of ice, squeezed up into every indescribable shape and form, varying in height from 15 to 25 feet. So thickly compacted together are these huge masses of ice that they appear to form an impenetrable barrier to our advance; but by dint of energy and perseverance our road-makers soon succeed in overcoming them. Some of the floes are far thicker than others, and it is of no unfrequent occurrence that we have to lower the sledges a distance of 6 or 7 feet from the top of one to the surface of another, or *vice versâ*. After lunch, George Porter, being unable to walk any further, had to be carried on the sledge. This is sad work; it makes our progress very slow and tedious. Snow commenced falling slightly at 3 p.m., and continued to fall throughout the day. Halted and pitched the tents on a large floe at 10.15 p.m. Men quite done up. It is no wonder the men appear fatigued at the termination of a day's work, for they are on their legs (and consequently on the move—for to sit down even for lunch with such a low temperature is at the risk of frost-bite) from the time they leave their bags until they get into them again—a period of about 17 hours; and this comes hard upon men who have been so long confined on board ship. Angles at camp:—

Calm b.c.: o.s.
Temperatures of air:—
noon −24°
6 p.m. −21
mid. −26
In tent:—
mid. − 5
9 a.m. +14

Cape Parry	25°	30′
Cape Joseph Henry and Peak, in transit	351	30
Conical Hill	316	
View Hill	302	
Mount Pullen	262	30

Course and distance made good, North, $1\frac{1}{4}$ mile. Distance marched, 9 miles. Hours on the march, 10. At lunch, $\frac{1}{2}$.

Tuesday, April 18th.

Having made a slight alteration in our weights by lessening those on the heavy sledge, we struck tents and resumed the march at noon. Porter's legs are very bad—so much so, as to necessitate his being carried on a sledge. Shirley, on the contrary, has slightly improved, and is able to walk slowly in our rear. Put the men on full allowance of pemmican, having hitherto only had three-quarters of a pound per man. Latitude at noon by observed Meridian Altitude 82° 50′ 54″ N. So hard were our sleeping-bags frozen

last night, that the operation of getting into them was positively painful; the night, however, was comparatively warm, and we slept pretty comfortably. Our travelling during the early part of the day was across floes of an uneven surface, and between hummocks, through which, however, there was no necessity of cutting a road; but the deep snow rendered the dragging exceedingly heavy. These floes, or the majority of them, are all massed together, squeezed one against the other, but with few or no hummocks between; vastly different from the huge piled-up masses we had to contend with nearer the shore. Opened out another Cape with a high peak and range of hills adjoining, bearing about W.N.W. (true), distant about 30 or 40 miles. A channel or deep inlet appears to exist between Cape Parry and this Cape. Being a beautifully clear evening, we sighted, just before halting, more land to the westward, trending slightly to the northward, a cape and two paps, which we take to be Cape Aldrich. The two paps, for the sake of reference, are named Mounts Alert and Discovery; we estimate their distance at about 60 or 70 miles. After lunch the description of ice over which we were travelling underwent great change, and it appeared to us that we had at length arrived on the veritable "palœocrystic" floes. We seem to have quite got away from the smooth level floes surrounded by dense hummocks, and have reached floes of gigantic thickness with a most uneven surface, and covered with deep snow. The travelling has been rough and heavy. The "Victoria" capsized, but was quickly righted without damage to either sledge or boat, and without even giving the invalid, who was securely wrapped up inside the boat, a shaking. The foremost batten of the "Marco Polo" was also carried away. A south-easterly breeze sprang up at 5 p.m., sending the temperature down sharply to −33°, and we had to be cautious about frost-bites. Angles at encampment:—

S.E. 2 to 3 b.c.v.
Temperatures of air:—
noon −21°
6 p.m. −18
mid. −33
Inside Tent:—
mid. − 7
9 a.m. +15

Mount Alert ..	26°	
Distant Peak ..	22	30
Cape Parry ..	21	30
Cape Joseph Henry ..	327	30
Conical Hill ..	305	
Mount Pullen ..	262	30

Course and distance made good, North 1 mile. Distance marched, 10 miles. Hours on the march, 10. At lunch, $\frac{1}{4}$.

Wednesday, April 19th.

A fine clear day. Started at 11.30 a.m. Shirley and Porter are no better, and both have to be carried on the sledges. Our sleeping bags last night were rendered a little more habitable from having been exposed during the day to the heat of the sun, which had the effect of extracting from them the greater part of the moisture. The helmet worsted caps so kindly and considerately presented to the Expedition by the Empress, are very warm and comfortable for sleeping in, and are much appreciated by the men, who call them "Eugénies." Found the travelling very heavy—deep and uneven snow ridges. Experienced great difficulty in getting from one floe on to another, some of them being, with the snow on their surface, as much as 8 and 9 feet above the others. After labouring and toiling for three and a-half hours, standing pulls nearly the whole time, during which period we had barely advanced 300 yards, I came to the determination of abandoning the 20-ft. ice boat. I did not arrive at this decision until after very mature deliberation, and from my own conviction that amongst such ice as we were then encountering, should a disruption occur, the boats would be of little avail to us, except to be used as a ferry from one floe to another. For this purpose the smaller boat will suffice. The men also appear much distressed at the conclusion of a day's work. Yesterday, after toiling for 10 marching hours, we only advanced 1 mile, and this with no road-making. Lightening our load by 800 lbs. will enable me to husband their strength a little. The operations connected with abandoning the boat and redistributing the weights on the several sledges, together with lunch, occupied 3 hours, when the march was again resumed, every one heartily glad to be well rid of such an encumbrance, and anticipating a more rapid advance, if such snail-like progress as ours can be so denominated. Before quitting the boat an oar was lashed to the mast and the mast stepped, yard hoisted and decorated with some old clothes so as to form as conspicuous an object as possible in order to facilitate our finding her again on our return journey, when, with our lightened sledges, we can easily bring her back to the ship.

Calm b.c.
Temperatures of air:—
noon −25°
6 p.m. −24
mid. −35
Inside tent:—
mid. − 5
9 a.m. +10

Angles to fix position of abandonment:—

Distant Peak	20°	15′
Cape Parry	17	30
Joseph Henry Peak ..	329	30

Joseph Henry Bluff ..	327	30
View Hill	297	0
Mount Pullen	263	0

At 7 p.m. we arrived on some young ice, between the floes and amongst hummocks, that afforded us capital travelling. On this we rattled gaily along, accomplishing half a mile in something like a couple of hours—good work for us. 10.15 p.m., halted and pitched our tents on a regular palæocrystic floe, having rounded hillocks on its surface from 25 to 30 feet high. Alfred Pearce (A.B.) was compelled to fall out towards the latter end of the day, from the drag ropes, suffering from a swollen ankle, which was dressed and bandaged in the same manner as the others after camping. Angles at Camp :—

Distant Peak	17°	40′
Cape Parry	11	0
Joseph Henry Peak ..	322	15
Joseph Henry Bluff ..	314	30
Conical Hill	298	30
View Hill	294	0
Mount Pullen.. ..	264	0

Course and distance made good, North 1 mile. Distance marched, 8 miles. Hours on the march, 8. Detained by abandoning boat, 3.

Thursday, April 20th.

In consequence of an impervious fog we were unable to make a start until 2 p.m. Even then the weather was so thick that we experienced great difficulty in making any head-way. Shirley and Porter are no better, and are still carried on the sledges. Road-makers busily engaged under Parr, who is himself setting an example by working like a slave with the pickaxe, cutting a road through hummocks. Men cheerful and working well. Crossing small floes and through hummocks that appear interminable. Snow very deep; prospect anything but cheering, as nothing but hummocks can be seen. At 8 p.m. the weather clearing slightly we succeeded in extricating ourselves from the hummocks, and crossing a large heavy floe got on to a stream of young ice that afforded us good travelling for a short distance. The more we recede from the land, the more young ice do we appear to meet, yet not to such an extent as to be able to derive much advantage from its presence. 10.30 p.m., halted and camped for the night, having accomplished, considering the weather and obstacles we had to encounter, a fair day's march. Course and distance made good, North 1½ mile. Distance marched, 8. Hours on the march, 8. Detained by thick weather, 3. At lunch, ½.

Northy. 1 to 2 o.s.
Temperatures of air :—

noon	−15°
6 p.m.	− 8
mid.	−14

Inside tent :—

mid.	+ 2
9 a.m.	+ 6

Friday, April 21st.

Started at 11.30 a.m.; Shirley a little better, and able to walk after the sledges. Porter also slightly improved, but still has to be carried. Pearce decidedly better, and able to resume his place on the drag ropes. A thick cloudy day, with a cold, piercing breeze from the northward. During the early part of the day our road lay over young ice, on which were some deep snowdrifts, and occasionally ridges of small hummocks; but after marching for about a mile our good ice terminated, and we were again obliged to take to our old palæocrystic floes and hummocks, and again our troubles commenced, or rather continued. Compelled to deviate to the eastward of our course in order to avoid a mass of heavy hummocks, through which it would take days to cut. Road-makers busily employed. After lunch we were forced to put Shirley on the sledge again in order to prevent his getting frost-bitten, as he was unable to move fast enough to keep himself warm. Although the temperature is only 17° below zero, the wind is so keen and cutting that the cold feels more intense to-day than on any day since we left the ship. It almost cuts one in two. In consequence we halted an hour earlier than we otherwise would have done, and camped at 9.30. Numerous superficial frost-bites among the party, and Thomas Simpson, A.B., rather severely in the big toe. Circulation restored in all cases. There appears to be a magnificent level floe ahead, and we predict good travelling for the morrow.

One of our greatest enemies that we have to contend with in crossing the large floes are the numerous cracks and fissures radiating in all directions and concealed from view by a treacherous covering of snow. Into these we frequently fall, sinking up to our waists. Weather too thick to obtain a round of angles, no land visible. Course and distance made good, North 2 miles. Distance marched, 9½. Hours on the march, 9½. At lunch, ½.

Northy. 2 to 5 o.f.
Temperatures of air :—

noon	−17°
6 p.m.	−18
mid.	−24

Inside Tent :—

mid.	0
9 a.m.	+10

Saturday, April 22nd.

Struck camp and proceeded at 12.15. Invalids slightly improving. Porter still has to be carried on a sledge, but Shirley, with the assistance of a staff, is able to walk a little. Wind blew in heavy squalls last night, and is blowing fresh from the N.W. this morning. It is painful to witness the efforts of the poor fellows, whilst they are dragging, endeavouring to shield their faces from the cold, cutting wind. They are an uncanny lot to look at—very dirty faces, and especially noses, all scarified and scabby, lips sore and tips of the fingers senseless from frost-bite—yet they are all cheerful and happy enough. A dull, cloudy day; a thick mist hanging over the land, entirely obscuring it from view. The floes travelled over to-day are more level than any we have hitherto crossed, and infinitely larger, one being quite $1\frac{3}{4}$ mile in length (in a north and south direction) and about 8 miles in circumference. This, however, is only a rough estimate, as it is difficult to judge. The snow is very deep. These floes appear to have come into contact with each other in a more amicable manner than those we have already passed, few or no hummocks lying between them. At 9 p.m., the weather coming on very thick, accompanied by driving snow, we crossed some hummocks, and camped on a level floe at 10.30. The wind has been bitterly cold all day, touching up our faces considerably. Course and distance made good, North, $2\frac{1}{2}$ miles. Distance marched, 9 miles. Hours on the march, 10. At lunch, $\frac{1}{2}$.

N. Wy. 3
North 4 o.s.
Temperatures of air:—
noon −17°
6 p.m. −16
mid. −17
In tent:—
mid. − 1
9 a.m. +20

Sunday, April 23rd.

A beautiful sun-shiny day, but misty over the land. Struck tents and started at noon. Latitude by Obs. Mer. Alt. 82° 58′ 37″ N. Crossed a heavy floe with numerous "hillocks" on it, but covered with deep and soft snow, that made it hard work for our sledges. It appears to us that the heavier the floes are, the deeper and softer is the snow on their surface. The temperature inside our tent this morning, before the coverlets were removed, was +20°—a decided improvement. It is difficult to account for the formation of these immense snow hillocks with which the heavier and larger floes are furnished, unless it be that they are formed by drift snow, the accumulation possibly of some years, which increasing year by year, and the surface periodically thawing during the summer, and then again congealing, form the diminutive ice-mountains we are so constantly passing. Our travelling to-day has been very heavy, and consequently our progress has been slow; much delay was caused by having to cut our way through various belts of hummocks. Shirley was able to walk after the sledges, but Porter had still to be carried. His symptoms are not pleasing. In addition to his bad leg he complains of great pain in his stomach; his arms are nearly powerless, and he occasionally spits blood, and feels weak and faint. He had to be revived this afternoon from a fainting fit produced by an effort made to walk after the sledges, by having administered to him 40 drops of spirit of ammonia in some water; the latter was made in a little kettle that had been kindly designed and constructed for us by Mr. George White, engineer, and which proved very useful when water in a small quantity was required. A sharp wind with a low temperature all day. Halted at 10.30, and camped on a large floe. Mist cleared up shortly after tents were pitched. Angles at camp:

S. Ey. 3, b.c.m.
East 4
Temperature of air:—
noon − 9°
6 p.m. −22
mid. −32
Inside tent:—
mid. − 4
9 a.m. + 2

Mount Alert	16°	30′
Cape Parry	343	30
Obs. Peak	303	
Cape Joseph Henry	298	30
Conical Hill	291	30
Mount Pullen..	267	30

Course and distance made good, North $1\frac{1}{4}$ mile. Distance marched, 6 miles. Hours on the march, 10. At lunch, $\frac{1}{2}$.

Monday, April 24th.

On walking to the northern extreme of the floe on which we were encamped, a dismal prospect met our view. Enormous hummocks from 20 to 30 feet high, all squeezed up together with apparently no floes beyond. Foreseeing that time and trouble must necessarily be expended before a road could be cut through these obstacles, a number of road-makers, with Parr at their head, were advanced at 10.30, whilst the remainder of the party remained in the tents. This course was adopted in consequence

of a cold wind that was blowing, in which with the low temperature it would have been unwise to have kept the men standing about waiting for the pioneers to complete their work. The hummocks appeared interminable. From the summit of the loftiest no floe of any size could be seen—nothing but an uneven range of shapeless masses of ice. By 4 p.m., with such energy did our road-makers work, a practicable road, nearly a mile in length, was completed, and we all returned to camp to lunch. After this was discussed the tents were struck, sledges packed, and the march resumed. Although the keen wind was decidedly unpleasant, by making sail on the boat, it materially assisted us. Having arrived at the end of our road, we halted and camped on a floe at 10.30 p.m., the majority of the men having been at work for 11 hours. Crossed the 83rd parallel of latitude to-day. Porter was still obliged to be carried, but Shirley was able to walk after us. Course and distance made good, North $1\frac{1}{2}$ mile. Distance marched, 5 miles. Hours at work, 11. At lunch, $\frac{1}{2}$.

Ey. 5 to 3. b. c.
Temperatures of air:—
noon −22°
6 p.m. −19
mid. −26
Inside tent:—
mid. + 2°
9 a.m. +16

Tuesday, April 25th.

Started at 11.30 a.m. Porter appears slightly better, but is unable to move without assistance. Shirley is neither better nor worse, and is just able to crawl along after the sledges. Pearce's ankle is still under treatment, and he has to be eased as much as possible from the drag-ropes. John Hawkins, cooper, one of the crew of the "Victoria," is also suffering from weak and swollen ankles, but is still able to perform his duty on the drag-ropes. Travelling over heavy floes, with deep snow drifts and hummocks between. Our time for treating the sick, administering potions, bandaging legs, &c., is as a rule, after supper, when the exertions of the day are over and the men are comfortably settled in their bags. It is impossible to conceive anything more disagreeable than sick men either in the tent or on the march, especially when they are helpless, persisting in groaning all night, and in being querulous and fretful. But sailors are proverbially good and kind nurses, and ours are no exception to the rule. A bright day, but with low temperature, and just sufficient wind to keep us fully aware, in a by no means pleasant manner, that we possess noses, or rather portions of them.

Ey. 4 to 1. b. c.
Temperatures of air:—
noon −17°
6 p.m. −14
mid. −20
Inside tent:—
mid. + 8
9 a.m +35

Latitude by obs. mer. alt. 83° 2′ 13″ N. The land for the last two days has been much distorted by mirage. The travelling to-day has been fairly good, we have been able to make a little more progress, but the snow remains very deep, and is of a tenacious consistency, adhering to our sledge-runners and thus retarding our advance. Opened out a deep bay or channel, immediately to the westward of Cape Parry. The sun was so powerful as to send the thermometer, when exposed to its rays, from −17° to −3°. Delayed towards the end of the day by a broad belt of small hummocks, through which a road had to be made. A faint parhelion showing prismatic colours. 10.30, halted and camped. Many of the hummocks passed to-day, although smooth and rounded on the top and on one side, were precipitous on the other and were fully between 25 and 30 feet high, resembling in a great measure the grounded floe-bergs in the vicinity of the "Alert's" winter quarters. Occasionally these appeared to be situated in the centre of the larger floes, but the depth of snow rendered it impossible to determine this matter satisfactorily. Angles at encampment:—

Cape Parry	..	332°	30′
Observation Peak	..	298	30
Cape Joseph Henry	..	292	
Conical Hill	..	289	30
Mount Pullen	..	269	
High Peak at head of Bay		335	30
Mount Alert	...	15	

Course and distance made good, North $2\frac{1}{4}$ miles. Distance marched, $7\frac{1}{2}$. Hours on the march, $10\frac{1}{2}$. At lunch, $\frac{1}{2}$.

Wednesday, April 26th.

Proceeded at noon. Latitude by obs. Mer. Alt. 83° 3′ 50″ N. Temperature inside our tent last night as high as + 35°, and outside as high as − 2°. This is a change for the better. Porter, Pearce, and Shirley seem to be slightly improving, but the former is still unable to walk without assistance, and has to be carried on a sledge. The drifts are frequently as much as 12 feet high, and it is a regular case of travelling up and down hill. The floes are not of any great extent, but are, notwithstanding, of enormous thickness. They are separated from each other, apparently having no connection, by

N. Wy. 1 b. c.
Temperatures of air :—
noon — 2°
6 p.m. —11
mid. —15
Inside tent :—
mid. +24
9 a.m. +28

streams of hummocks from 10 to 50 yards in breadth. Across these we are compelled to cut a road ; our chief difficulty, however, is in getting the sledges from off the floe on to our road, and then up again on to the next floe, so steep and abrupt is the ascent and descent. Pickaxes however, wielded by skilful and determined hands, perform wonders. The thermometer when exposed to the sun this afternoon rose to +7°. Dried our tent robes, etc., on the sledges whilst marching. A bright parhelion at 8 p.m. shewing the three mock suns and the double halo, all of prismatic colours. 10.30, halted and camped. During the last two hours our road lay across some extraordinarily heavy floes, with enormous hummocks fully 30 feet high. Some of these appeared to be the result of long and continuous snow drift, whilst others were undoubtedly fragments broken off the edge of a floe, composed of several pieces and lying in a confused heap together. Our tents were pitched on the northern extreme of one of these ponderous floes, with an apparently impassable sea of hummocks, extending north, east, and west, as far as the eye could range. It looked like the "end of all things." The task of cutting a road through the obstacles ahead will be a severe one, yet it is the only resource. The men appeared much fatigued on halting ; doubtless this is due to the rise of temperature. Angles at camp :—

Cape Giffard.. ..	344°	15′
Peak at head of Bay..	335	0
Cape Parry	327	0
Observation Peak ..	296	0
Cape Joseph Henry..	292	0
Conical Hill	288	30
Mount Pullen ..	271	30

Course and distance made good, North $1\frac{3}{4}$ miles. Distance marched, $6\frac{1}{2}$. Hours on the march, 10. At lunch, $\frac{1}{2}$.

Thursday, April 27th.

Our moccasins are getting into rather a dilapidated state, the soles with which they were furnished being taken from the upper leather of our "fishermen's boots" being completely worn through ; the grey boot hose, knitted drawers, and guernseys being also in a very ragged condition. At 10.30., Parr, with half a dozen road-makers, started to make a road through the hummocks, leaving the remainder of the party to strike the tents, pack the sledges, and drag them on one by one. By lunch time we had advanced $\frac{1}{4}$ of a mile. At noon the latitude by observed mer. alt. was 83° 6′ 41″ N. Our invalids exhibit no signs of improvement; Hawkins had to be relieved as much as possible from the drag ropes, and Pearce still suffers from stiff ankles, although he makes a show of dragging. Both shovels, from constant use, have come to grief, breaking short off at the handles, but we succeeded in "fishing" them, thus making them serviceable again. On emerging from the hummocks, we came across a succession of small but heavy floes on which the snow is knee-deep, and surrounded by large hummocks (with one exception), which kept the road-makers fully occupied the entire day in cutting a way through. The exception was a small floe, nearly level, having no hummocks piled round its edges. On a vertical section of it being measured, its height was found to be from 5 feet 6 inches to 6 feet 10 inches above the surface of the young ice. 9.30, halted and camped for the night. Men thoroughly fatigued. They would frequently drop off to sleep when halted only for a few minutes. The land was so concealed from view by the surrounding hummocks that we were unable to obtain any angles. Course and distance made good, North $1\frac{1}{4}$ mile. Distance marched, $7\frac{1}{2}$ miles. Hours on the march, $10\frac{1}{4}$. At lunch, $\frac{3}{4}$.

N. Wy. 1 b.c.
Temperatures of air :—
noon — 9°
6 p.m. — 1
mid. — 9
Inside tent :—
mid. +26
9 a.m. +35

Friday, April 28th.

A dull cloudy day and snow falling, but with, for the first time, a temperature above zero. At 12.30, Parr and six road-makers started ahead to cut a way through the hummocks, the remainder of the men dragging the two light sledges on singly, the whole party returning to drag up the heavy sledge as soon as a road was practicable. Heavy hummocks, deep snow, and thick weather render our progress slow. Selecting the route is a work of difficulty, it being impossible to see many yards ahead—above, below, and around being all of one uniform colour. Had again the misfortune to capsize the sledge and boat on which was Porter, but luckily no evil resulted, a slight delay being the only inconvenience. On the surface of a floe crossed during the evening was

a crust of ice about an inch thick covering the deep snow. To our great surprise, whilst crossing a fringe of hummocks, we observed the tracks of a hare. They were apparently recent. The little creature was evidently exhausted, the steps being short and close together, and travelling in a southerly direction. These footprints naturally excited our interest, as we were fully 17 miles from the nearest land. Halted and camped at 10.30 p.m., having travelled during the last hour over young ice. Course and distance made good, North $1\frac{1}{2}$ miles. Distance marched, 6 miles. Hours on the march, 10. At lunch, $\frac{1}{4}$.

S. Ey. 1 o.s. c.m. N.W. 2.
Temperatures of air:—
noon + 2°
6 p.m. + 5
mid. −10
Inside tent:—
mid. +24
9 a.m. +25

Saturday, April 29th.

Struck camp and proceeded at 11.45 a.m. Latitude at noon by observed Meridian Altitude 83° 9′ 21″ N. Since the warm (?) weather set in we dress and roll up our bags before breakfast, so as to be able to make a start immediately that meal is finished. A fine sunny day, but with a sharp wind from the N.W. Our work to-day has been very distressing, and we advance but slowly; small floes with huge hummocks, and the snow over our knees. We are often compelled to deviate considerably to the eastward or westward of our course, in order to make progress at all. Occasionally, during the latter part of the day we were able to avail ourselves of a few short leads of young ice that we constantly met twining round the heavy floes and between the hummocks, but never to such an extent as to profit greatly by them. The road makers have been busily employed the entire day; consequently the sledges had to be advanced singly by the remainder of the men. The wind has been very nipping. Noses, whilst sledging, have been voted a nuisance and could readily be dispensed with. Thick and threatening clouds banking up to the Northward portend snow or wind. Halted and camped at 10.15. Course and distance made good, North $1\frac{1}{4}$ mile. Distance marched, $7\frac{1}{2}$ miles. Hours marched, 10. At lunch, $\frac{1}{2}$.

N. Wy. 2 to 4, Wy. 5. b.c.
Temperatures of air:—
noon + 1°
6 p.m. + 2
mid. − 4
Inside tent:—
mid. +17
9 a.m. +26

Sunday, April 30th.

Shortly after the tents were pitched last night the wind freshened, the clouds thickened, and snow commenced falling heavily, continuing without intermission the entire night and all to-day. So thick is the weather that we are unable to make a move, as we can scarcely see the length of two sledges ahead. Surrounded as we are by hummocks, it would be folly to attempt pushing on. Our patience is sorely tried, enduring this idleness, especially when we consider how little we have hitherto accomplished, and the short period that now exists before we are compelled to retrace our steps. If we attempt to advance we shall in all probability lose more ground than we shall gain, as we shall very likely get entangled amongst the hummocks, whence we shall have much difficulty in extricating ourselves. The rest will do no harm to the men.

Number of hours detained by weather, 10.

N.Wy. 5 to 3 o.s.f.
Temperatures of air:—
noon + 7°
6 p.m. + 7
mid. + 2
Inside tent:—
mid. +24
9 a.m. +27

Monday, May 1st.

A fine bright morning has ushered in the month of May, to our no small pleasure. Struck camp and started at 11.30 a.m. Latitude by Obs. Mer. Alt. 83° 10′ 30″ N. Invalids much the same. Hawkins totally unfit for duty; his ankles and calves slightly discoloured; and Shirley very weak and faint. Porter's symptoms appear to be scorbutic, his teeth are loose and gums sore, and his legs covered with a rash and discoloured in patches about the knee. During the early part of the day we travelled over streams of young ice with small hummocks between, requiring constant road-making: the snowdrifts very deep, making the dragging heavy for our diminished crews. After lunch arrived on a large level floe that afforded us a good mile and a half travelling in the right direction; the snow less deep on it than on other floes, doubtless on account of its even surface, which prevents the snow from collecting into drifts by the wind. At 5 p.m. a north-westerly breeze sprang up, and at 7 heavy clouds were seen banking up in the same quarter. By 9 o'clock we were enveloped in a thick fog. Camped at 10.30 amongst hummocks, with apparently nothing but hummocks ahead. The tents had scarcely been pitched before the fog rolled away to the southward as rapidly as it had come down upon us, leaving a bright luminous band stretching away along the N.W. horizon. Administered forty drops of spirit of ammonia to Shirley, who fainted whilst performing the functions of nature. Course and distance made good, North $2\frac{3}{4}$ miles. Distance marched, 9 miles. Hours on the march, $10\frac{1}{3}$. At lunch, $\frac{1}{3}$.

Calm b.c.
N. Wy. 3 o. f.
Temperatures of air:—
noon − 2°
6 p.m. −10
mid. −10
Inside tent:—
mid. +12
9 a.m. +16

Tuesday, May 2nd.

Started the road-makers cutting a road through the hummocks and deep snow drifts at 12.30, leaving the remainder of the party to attend to the sick and bring up the sledges singly. The invalids are not improving, and we are inclined to believe that they are all attacked with scurvy, although we have not been led to suppose that there is any probability of our being so afflicted, and are ignorant of the symptoms. Porter complains of great weakness, giddiness, and sickness of the stomach. Shirley's knees are discoloured, exhibiting a livid purplish hue ; so also Hawkins' ankles. Alfred Pearce is still suffering (and under treatment) with bad ankles, and can only just hobble along, whilst Reuben Francombe (A.B.) has the calves of his legs very much swollen and can scarcely walk. Our strength is rapidly decreasing. A fine day, but with a sharp north-westerly wind blowing ; a thick mist hanging over the land entirely concealing it from our view. So rough was our road and deep the snowdrifts that we barely advanced half a mile before lunch. The travelling was no better during the latter part of the day, and we encamped at 11.15 p.m. on a small floe amidst a pile of hummocks, thoroughly fatigued and weary. The snowdrifts met to-day were frequently 5 feet and 6 feet deep, and all this had to be shovelled away and gaps filled in before we could advance. Several concealed rents and cracks in the floes were crossed, through which we would fall and nearly disappear, but always succeeded in scrambling up unhurt. At about six o'clock the fog surrounding the land lowered slightly, displaying the tips of the hills above the fog bank in a very conspicuous manner ; the remainder of the land being quite invisible, it had a very curious effect. By 10 p.m. the fog had entirely cleared away. Towards night the temperature fell as low as −17°. Angles obtained about a quarter of a mile south of encampment :—

N.W. 4 to 1 b.c.m.
Temperatures of air :—
noon − 3°
6 p.m. −10
mid. −17
Inside tent :—
mid. +11
9 a.m. +19

Mount Alert	3° 30′
Peak at head of large Bay	326
Observation Peak	292 15
Cape Joseph Henry	290
Conical Hill	287 20.

Course and distance made good, North $1\frac{1}{4}$ mile. Distance marched, $7\frac{1}{2}$ miles. Hours on the march, $10\frac{1}{4}$. At lunch, $\frac{1}{2}$.

Wednesday, May 3rd.

Struck tents and proceeded at noon. Latitude by obs. mer. alt. 83° 14′ 45″ N. Invalids no better—all five utterly helpless, and therefore useless. Porter still on the sledge. Francombe and Pearce are both suffering : their calves are much swollen, and have assumed a livid colour. A dull foggy day. The hummocks do not appear to be massed so close together as those we have been lately struggling with, although they are equally large and heavy. The snow drifts are surprisingly deep, making the dragging very distressing. On one occasion the drift was so deep that the boat sledge was completely buried in it whilst being pulled through, and we were forced to unload before we succeeded in extricating it. The few floes occasionally met are comparatively small, barely a hundred feet across, none over a quarter-of-a-mile, but all composed of very heavy ice. A dense fog, but not sufficiently thick to retard our progress altogether, that has persistently hung over us all day, materially increased our labour by adding to the difficulties of selecting a good route through the hummocks. 10.30, stopped and pitched our tents on the edge of a floe, not of any great extent, but to arrive on which we had to make a considerable *detour* to the eastward. The men appeared much done up. The extra work entailed on them by so many being sick seems to affect them already. Course and distance made good, North, $1\frac{1}{4}$ mile. Distance marched, $7\frac{1}{2}$ miles. Hours on the march, 10. At lunch, $\frac{1}{2}$.

N. W. 2. o. f. m.
Temperatures of air :—
noon − 7°
6 p.m. − 2
mid. − 5
Inside tent :—
mid. +10
9 a.m. +14

Thursday, May 4th.

Struck camp and made a start at 11.30 a.m. Snow falling thick and fast. Invalids the reverse of improving. Francombe so bad that he is obliged to be put on a sledge. Porter still has to be carried. Pearce and Hawkins are decidedly worse, whilst Shirley is unable to walk without assistance. More of the men are complaining of stiffness and pain in their legs, which, we fear, are only the premonitory symptoms. After advancing for about half-a-mile, which distance took us nearly four hours to accomplish, we arrived at such a confused heap of hummocks that in the thick state of the weather rendered a further advance impossible. We were. therefore, compelled to halt and pitch

the tents. After lunch, the weather clearing slightly, we pushed on with a strong party of labourers, and succeeded in making a very fair road nearly three-quarters of a mile in length, returning to camp and bagging at 9.30 p.m. The hummocks appeared interminable; the floes small—not more than 50 to 100 yards across, between which are our enemies the hummocks, lying squeezed up in a shapeless mass, one on top of the other, to the height of over 20 feet, and in belts from 30 to 40 yards in breadth. A line of discoloured hummocks extended for some distance along the edge of one of the floes; on examination the discolouration was found to be caused by the adherence of mud or clay. Some of these hummocks seemed to be part and parcel of the floe, and, although squeezed up above the ordinary level, had not been separated, and to all appearance formed the edge of the floe. It looked as if the side of the floe had been rubbed against, or in some manner come into contact with, the shore. Specimens of the mud were collected and bottled for microscopic investigation on our return to the ship. Course and distance made good, North $\frac{1}{4}$ of a mile. Distance marched, $1\frac{1}{2}$ mile. Hours at work, 8. At lunch, 0. Detained by bad weather, $2\frac{1}{2}$.

N.W. 1 o.f.s.
Temperatures of air:—
noon + 4°
6 p.m. + 8
mid. − 4
Inside tent:—
mid. +13
9 a.m. +17

Friday, May 5th.

A dull foggy day, and snow falling. Packed sledges, and advanced at 11.30 a.m. with one sledge, leaving one tent pitched and the invalids inside. Arriving at the termination of our made road of yesterday, the other tent was pitched, and we returned to bring up another sledge, and so on until the whole camp was advanced. Porter and Francombe have still to be carried. The time occupied in dragging our sledges along this made road of $\frac{3}{4}$ of a mile being $4\frac{1}{2}$ hours. The weather remaining as thick as pea soup, all further progress was quite out of the question, and, much as we all disliked the forced inactivity, we were compelled to remain in our bags for the remainder of the day. A dreary scene surrounded us. A cold, desolate, and inhospitable looking scene. Everything of the same uniform colour, nothing to relieve the eye, nothing but one sombrous, uneven and irregular sea of snow and ice.

S. W. 2 o.f.s.
Temperatures of air:—
noon − 2°
6 p.m. − 1
mid. − 7
Inside tent:—
mid. +10
9 a.m. +15

The temperature has been about zero all day, which has had the effect of making our bacon eatable, for hitherto it has been frozen so hard as to be almost unpalatable; indeed, sometimes so hard as to defy all efforts to eat it; but we used to remedy this by putting it into our warm tea, and so thawing it, rendered that decoction not unlike soup, but it had the disadvantage of cooling it very quickly.

Course and distance made good, North, $\frac{3}{4}$ of a mile. Distance marched, 4. Hours on the march, 5. Detained by thick weather, $5\frac{1}{2}$ hours.

Saturday, May 6th.

A fine bright sunshiny day. Latitude at camp, by obs. mer. alt. 83° 16′ 36″ N. Angles at camp:—

Cape Giffard	332° 30′
Cape Parry	314 0
Observation Peak..	293 30
Cape Joseph Henry	291 0
Conical Hill	289 50

Our sick men are evidently not improving; Francombe's thighs and calves having turned completely livid; even the rest they have had for the last two days has not been productive of any beneficial result. Three have now to be carried on the sledges, namely, Porter, Francombe, and Hawkins. Pearce and Shirley can just manage to crawl after us. It is very distressing to the remainder of the men, who, although they work well and bear up bravely, must feel a little disheartened. Two of the crew of the "Marco Polo," John Radmore and Thomas Joliffe, have also for the last few days been suffering from snow blindness, though in a mild form. Their eyes are washed with a lotion of sugar of lead, which gives them great relief. Struck camp and proceeded at 12.30. The sick men are invariably the cause of great delay in starting, as they are perfectly helpless, being even unable to dress or undress without assistance. We appear to have arrived at a perfect barrier of hummocks and portions of floes, all broken and squeezed up and covered with deep snow. It is possible we may be able to penetrate these obstacles, eventually reaching larger and more level floes, on which we may be able to make more rapid progress. We ascended one large hummock, from the summit of which the prospect was anything but encouraging—nothing but one vast illimitable sea of hummocks. The height of this hummock was ascertained by means of a lead line, and

Calm.
S. Ey. 2 b.c.
Temperatures of air:—
noon − 2°
6 p.m. −11
mid. −16
Inside tent:—
mid. +14
9 a.m. +2.

was found to be from its summit to the surface of the snow at its base 43 feet 3 inches. It did not appear to be a floe berg, but a mass of hummocks squeezed up and cemented together by several layers of snow, making it resemble one huge solid piece. The travelling has been exceedingly heavy, and with the weights on the sledges augmented, the deep snow, and a third of our band *hors de combat*, it is next to impossible to advance many feet without resorting to "standing pulls," or the endless "one, two, three, haul." 6 p.m.; longitude by observation 62° 40′ 30″ W. Variation of compass 102° W. 10 p.m.; halted and pitched tents, and having made the invalids comfortable inside, commenced road making through an adjacent fringe of hummocks, ready for a start in the morning. Completed the road and "bagged" by midnight. Although the sun has been very warm all day, the temperature has been low, a S.E. breeze springing up at lunch time, sending it down to —11°. Course and distance made good, north 1 mile. Distance marched 6 miles. Hours on the march 10. At lunch ½.

Sunday, May 7th.

Calm b. c.
Temperatures of air:—
noon + 2°
6 p.m. — 8
mid. — 9
Inside tent:—
mid. +15
9 a.m. +34

Started at noon. Porter, Hawkins, and Francombe on the sledges. We had scarcely advanced a couple of hundred yards with one sledge, standing pulls the whole distance, the prospect ahead being heavy hummocks and deep snow drifts, when it became painfully evident that neither Pearce nor Shirley were able to walk. At first we attributed their weakness to a little unusual stiffness that would soon wear off, but it became only too palpable that they were utterly unable to move. Under these distressing circumstances there was nothing to be done but to advance with one sledge, unload it, return with it empty, and then bring on the remainder of the gear and invalids. The snow being very deep, the continual walking backwards and forwards is very fatiguing to the men; they find it easier to drag a sledge through the deep snow than to walk without the support of the drag belt. Pitched the tents at 4 p.m. in order to give the sick men a longer rest. After lunch constructed a snow pedestal, and with the "Fox" obtained a series of magnetic observations for inclination and total (relative) force, also sights for longitude and variation. We are entirely surrounded by large and numerous hummocks, presenting a serious impediment to our further advance, added to which the snow between these hummocks is soft and deep, nearly up to our waists in many places.

Course and distance made good north, ¼ of a mile. Distance marched, 2¼ miles. Hours on the march, 2½. Detained by sickness, 8 hours.

Monday, May 8th.

Calm b. c.
Temperatures of air:—
noon + 2°
6 p.m. — 4
mid. — 7
In tent:—
mid. +27
9 a.m. +39

The interiors of our tents of an evening have more the appearance of hospitals than the habitations of strong working-men. In addition to the "cripples." four men belonging to the "Marco Polo" are suffering from snow blindness, although in a mild form; their eyes are bathed with the sugar of lead lotion. The turpentine liniment being expended, the swollen legs and ankles of the sick men have of late been rubbed with concentrated rum, but this, appearing to irritate the skin, has been discontinued. At noon started all available hands under Parr, with pick and shovel, road-making, as we are desirous of ascertaining if this apparently interminable line of hummocks is of great extent. To solve this is all we can now expect to do. A bright warm day. Aired and dried all tent gear, &c. Made a complete series of magnetic observations for inclination and total force. Latitude by Obs. Mer. Alt. 83° 17′ 34″ N. Longitude by observation 62° 40′ 45″ W. Variation of compass 98° W. Walked on with Parr towards the end of the day, about a mile to the northward, selecting a route for the sledges. At our furthermost point from the summit of a high hummock (about 35 or 40 feet in height), we saw, about 2° or 3° to the northward of Cape Aldrich, either land or the loom of it; but it was impossible to make certain that it was either, so easy is it to be deceived at such a long distance. The hummocks around us are of different heights and bulk, varying from small fragments of ice to huge piles over 40 feet high. Some of these larger ones are simply masses of squeezed up ice, whilst others of great magnitude, but perhaps not quite so high, are the regular floebergs. Between these hummocks, and consequently along the only road that is practicable for our sledges, the snow has accumulated in drifts to a great depth, and these forming into ridges render the travelling all the more difficult. Some of the tops of these ridges are frozen hard, and it is no uncommon occurrence to step from deep snow through which we are floundering up to our waists, on to a hard frozen piece, and *vice versâ*. Occasionally these ridges are

only partially frozen, sufficiently only to deceive one, which makes it exceedingly disagreeable and laborious to get through.

Returned to camp and bagged at 9.30. Angles at camp :—

Extreme of Land	0°	25′
Distant Peak	355	
Cape Giffard	327	15
Peak at head of Bay	324	30
Cape Parry	311	50
Observation Peak	291	30
Conical Hill	284	50
Joseph Henry Peak	290	5

Hours at work, 5. Detained by sickness, 5.

Tuesday, May 9th.

We have at length arrived at the conclusion, although with a great deal of reluctance, that our sick men are really suffering from scurvy, and that in no mild form. The discolouration of their limbs, their utter prostration and helplessness, their loss of appetite and depression of spirits, with other symptoms, appear decidedly scorbutic. Should our surmise be correct, we can scarcely expect to see any of the afflicted ones improve until they can be supplied with fresh meat and vegetables. We are unwilling for the men to suspect that they are really suffering from this terrible disease, but at the same time are issuing to those attacked a small quantity out of the very little lime juice we brought away with us. It is given to them in lieu of their grog, as being a better blood purifier. We have only two bottles, on each sledge, of this excellent anti-scorbutic. It is another beautifully warm sunny day, with the temperature only a degree or two below zero. Made a start at half-past twelve, by advancing with one sledge with half its load and two invalids upon it. This was dragged up to the extreme of yesterday's road-making, a distance of three-quarters of a mile, when the tent was pitched, the invalids placed inside, and the sledge taken back, again loaded, and again advanced with two more invalids, the men returning and bringing up the other two sledges, with the remainder of the gear and the fifth invalid, one at a time. It was past eight o'clock before the last sledge arrived, and though we had only made good three-quarters of a mile, so tortuous was our road, winding round and about the hummocks, that to accomplish this distance we marched between 6 and 7 miles through very deep snow. After the tents were pitched, a party of road-makers were advanced to prepare a road through the hummocks, returning to their bags at half-past nine p.m.

S. Ey. 1 b.c. Temperatures of air :—
noon — 4°
6 p.m. + 2
mid. — 8
Insi e tent :—
mid. +15
9 a.m. +35

Our invalids do not appear to have benefited by their long rest. Porter seems to be rather worse, and complains of great pain in the chest—for which a mustard plaster was applied, giving a little relief,—accompanied with giddiness and faintness. He has occasionally to be revived by being given some spirit of ammonia. Hawkins' face is breaking out with boils and sores, and his gums are affected in the same manner. Shirley also suffers from faintness. Indeed, this is a general complaint with all the sick, and they are all totally helpless and prostrate, having even to be carried from the tent to their sledges and back again. The duty of attending upon the sufferers, although willingly and cheerfully performed, is harassing to both officers and men. The nauseous smell caused by the offensiveness of their breath, which pervades the whole tent, makes it extremely unpleasant to all. Thomas Rawlings (Capt. F.C.), Sledge Captain, William Simpson (A.B.), William Ferbrache (A.B.), of the "Marco Polo," and George Winstone (A.B.), of the "Victoria," are also complaining of great stiffness and soreness of the legs, some of which show slight symptoms of discolouration on the inside parts of their thighs and under the bends of the knees. Course and distance made good north, $\frac{3}{4}$ of a mile. Distance marched, $6\frac{1}{2}$ miles. Hours at work, $8\frac{1}{2}$. At lunch, $\frac{1}{2}$. Detained by sickness, 2.

Wednesday, May, 10th.

At 11.30 a.m., having loaded the two eight-man sledges to 830 lbs. on each, started with them single banked, the tents being left pitched and the invalids inside. Latitude at noon by observed Meridian Altitude, 83° 17′ 56″ N. Having advanced little better than a mile, the sledges were unpacked and dragged back empty to the camp. The remainder of the gear and invalids were then advanced by short stages until 7 p.m., when a halt was called and the tents pitched for the night. There was a slight fall of snow during the day, when the temperature rose to + 15°. Except at the time of this

shower, the sun shone brightly all day, making it warm and pleasant. After very serious consideration, I have arrived at the conclusion, though sorely against my inclination, that this must be our most northern camp. With five out of our little force totally prostrate, and four others exhibiting decided symptoms of the same complaint, it would be folly to persist in pushing on. In addition to which the greater half of our provisions have been expended. To-morrow will be our fortieth day out; only thirty-one days' full allowance of provisions remain, so that prudence and discretion unite against our own desires of advancing, and counsel a return. A complete rest to the invalids of a couple of days may be productive of much good, during which time we may be usefully engaged in making observations in various interesting matters. With this we must be content, having failed so lamentably in attaining a high northern latitude. It is a bitter ending to all our aspirations. After the tents were pitched a pedestal was cut out from a snow-drift on which to make magnetic observations. The patients' limbs were well rubbed with glycerine ointment, and an opium-powder was administered to Daniel Harley, who had been complaining of looseness and pain in his stomach. While pitching the tents, Francombe, feeling quite strong, tried to walk a little by himself, but it brought on such pain in the legs that after a minute or two he had to sit, and before anything could be given him fainted away. The faint, however, did not last long, and on coming to he was quickly recovered by some spirit of ammonia. Hawkins at the same time tried to walk a short distance with help, but with a similar result, except that he did not faint altogether. Course and distance made good. North, $\frac{3}{4}$ of a mile. Distance marched, $5\frac{1}{2}$ miles. Hours on the march, 7. Detained by sickness, 3. At lunch, $\frac{1}{2}$.

South 1 b. c. m.
Temperatures of air:—
noon + 8°
6 p.m. +15
mid. 0
Inside tent:—
mid. +27
9 a.m. +36

Thursday, May 11th.

As it was desirable to benefit by the heat of the day during the time we were employed making our observations, the cooks were called at 7 a.m., and breakfast was ready at half-past 8. Immediately after, the men were set to work to cut a hole through some young ice that lay between the hummocks bordering our floe. This they accomplished in three hours, the thickness of the ice being 64 inches. With a hundred-fathom line, with which we were furnished for occasions of this sort, we sounded to ascertain the depth of water, and to our great surprise obtained soundings in 72 fathoms, the bottom consisting of clay. Arming the lead, and appending to it various other contrivances for the purpose of collecting a specimen of the nature of the bottom, we succeeded in obtaining a small quantity, which has been carefully preserved in a small bottle for conveyance to the ship. The hardness of the substance prevented a large supply being obtained. The specific gravity of the surface water was ascertained, and by means of a Casella thermometer, No. 3, the following series of temperatures were taken at every 10 fathoms from the surface:—

Temperature at surface					..	..	28·5°
,,	,,	10 fathoms			..	..	28·5
,,	,,	20	,,		..	..	28·5
,,	,,	30	,,		..	..	28·8
,,	,,	40	,,		..	..	28·8
,,	,,	50	,,		..	..	28·8
,,	,,	60	,,		..	..	28·8
,,	,,	72	,,	(bottom)	..		28·8

Tidal action was apparent, but with the rough appliances at our disposal it was impossible to make any accurate observations regarding it, the set being, as near as we could judge, N.W. and S.E. Improvising a dredge, and baiting it with the scrapings of our pannikins, &c., it was lowered down the hole, and on being hauled up after remaining some hours at the bottom, was found to be literally swarming with small crustaceans, apparently of two different kinds. Several specimens of these were collected, and placed in spirits of wine for preservation. Hooks were baited and attempts made for fish, but without success. Took a complete double series of magnetic observations for inclination and total force. Latitude by Obs. Mer. Alt., 83° 19′ 2″ N. Longitude by observation, 62° 39′ W. The weather was too thick and misty over the land to get a round of angles, no prominent points being visible; yet at times between the snow showers that fell continually during the day the sun would shine out brightly, and with such power as to thaw the snow upon our clothing; and this again freezing and being converted into ice made it difficult to brush off. The invalids are no better to day. Francombe appears to be very weak, and very nearly fainted again whilst being assisted out of the tent for a few moments. The light cases appear no worse.

Sy. 1 b. c. m. s.
Temperatures of air:—
noon + 3°
6 p.m. + 4

Friday, May 12th.

Breakfasted at 8.30, immediately after which, leaving the cooks behind at the camp attend upon the invalids, the remainder of the party carrying the sextant and tificial horizon, and also the sledge banners and colours, started northwards. We had me very severe walking, struggling through snow up to our waists, over or through hich the labour of dragging a sledge would be interminable, and occasionally almost sappearing through cracks and fissures, until 20 minutes to noon when a halt was lled. The artificial horizon was then set up, and the flags and banners displayed; ese fluttered out bravely before a fresh S.W. wind, which latter however was decidedly ld and unpleasant. At noon we obtained a good altitude, and proclaimed our latitude to 83° 20′ 26″ N., exactly 399½ miles from the North Pole. On this being duly nounced three cheers were given with one more for Captain Nares, then the whole rty, in the exuberance of their spirits at having reached their turning point, sang the Union Jack of Old England," the "Grand Palœocrystic Sledging Chorus" winding up e loyal subjects with "God Save the Queen." These little demonstrations had the ect of cheering the men, who nevertheless enjoy good spirits. The instruments were en packed, the colours furled, and our steps retraced to the camp. On arrival the flags re hoisted on our tents and sledges and kept flying for the remainder of the day. A agnum of whisky that had been sent by the Dean of Dundee for the express purpose being consumed in the highest northern latitude, was produced, and a glass of grog rved out to all. It is needless to add his kindness was thoroughly appreciated, nor s he forgotten in the toast of "absent friends." We were extremely fortunate in ing able to get an altitude at noon, as shortly after the clouds gathered dark and ick, turning out a cold dull unpleasant afternoon. In spite of this however we all joyed our supper, as we had the hare shot by Moss at Depôt Point, equally divided tween our two tents, cooked in our evening allowance of pemmican, making it commonly good and savoury. After supper a cigar, presented to us by May before ving the ship, was issued to each man, and the day was brought to a close with songs, en the invalids joining in. All seemed happy, cheerful, and contented.

S. W. 2 to 5 c.m.s.
Temperatures of air:—
noon + 4°
6 p.m. + 2
mid. − 2
Inside tent:—
mid. + 8
9 a.m. +14

Course and distance made good, North 1½ mile. Distance marched 3½ miles. ours on the march 5.

Saturday, May 13th

A fresh breeze from the north-west and much snowdrift. Our outward-bound tracks arly obliterated. Deposited a couple of records in two tin cases, stating the date and itude. They were placed on the top of two of the highest hummocks near the edge of floe. During the last two days, both our chronometers stopped suddenly, and for about same period; namely, 10 or 15 minutes. Since leaving the ship they had invariably en worn inside our shirts. The invalids appear no better for their long rest. Started half-past two p.m. with two sledges, leaving the tents pitched and the sick inside, d commenced our march to the southward. Parr remained behind and applied a ustard poultice to Porter's chest, who seems very bad, complaining of a difficulty of spiration. The poultice afforded him relief. Hawkins also complains slightly of his est. Shirley is also much depressed, and complains bitterly of his helplessness. The ners show more fortitude and resignation. Having advanced the two sledges for some stance, they were unpacked and dragged back to camp empty. The tents were then ruck, and putting two invalids on each of the small sledges, and one in the boat on e large sledge, again advanced by short stages, dragging the lighter ones single-banked, x hands to each, the whole party returning to drag the heavy one. As this will be r future mode of travelling, no further reference will be made regarding the details of our der of marching, unless an alteration occurs. The utmost difficulty has been experienced adhering to our old road, the weather being so thick and gloomy, and the snow having ifted over the sledge tracks, being the main cause. Halted and camped at midnight. urse and distance made good, south 1¼ mile. Distance marched 8½ miles. Hours on arch 8½. At lunch 1.

S.W. 4 to 7 o.m.q.z.
Temperatures of air:—
noon + 3°
6 p.m. + 3
mid. + 7
In tent:—
mid. +38
9 a.m. +35

Sunday, May 14th.

Started at 3.15 p.m. A dull, cloudy day. Sky and ground, from the equal ffusion of light, appear to be the same; and although dark objects are readily distinuished at some distance, it is impossible to see many yards ahead: this makes following e old road a task of much difficulty. A hummock passed yesterday, although composed

of one piece of ice, was of two different colours, a deep blue and a pale yellow, the two colours gradually blending one into the other without exhibiting any definite line of demarcation. The yellow colour was doubtless due to the presence of diatomaceæ. Halted and camped at 12.30. It is a curious fact that for the last week or ten days our appetites have been decreasing in a marvellous manner. For the first three weeks after leaving the ship the majority of us were perfectly ravenous, and could easily at supper-time have devoured an extra pannikin full of pemmican. Now we are seldom able to consume what is served out to us, although little more than half the allowance is cooked. It is with great difficulty the patients can be induced to eat anything, their mouths being too tender to eat the biscuits, although well soaked, and their stomachs rebelling against the pemmican and fat bacon. Porter appears to be slightly better to-day; the others show no signs of improvement. Rawlings' legs are getting bad, and, like the other bad cases, have the same red spots on the calves and the same discoloured, livid hue round the knee-joint. Winstone, Simpson, and Ferbrache are no better. Course and distance made good, south 1 mile. Distance marched, 7½ miles. Hours on the march, 8¼. At lunch, 1.

S. Wy. 1 o. m. s.
Temperatures of air:—
6 p.m. +10°
mid. +11
3 a.m. + 9
Inside tent:—
3 a.m. +36
3 p.m. +28

Monday, May 15th.

A fine day, but misty over the land. A sharp south-easterly breeze, and a temperature at + 6° touches us up unpleasantly about the face. Made a start at 4.15 p.m. We are gradually getting into night travelling, as it will be better for our eyes to travel with the sun at our backs as much as possible. The men have little idea of the time of day, calling it morning when we have breakfast and evening when we halt, although in reality the reverse is the case. We are still following up our old road, and devoutly trust we shall be able to adhere to it the entire distance—to make a new road will cause much detention. Halted at 1.45 a.m., and camped for the night. During the time we halted for lunch we attempted to get the specific gravity of some discoloured ice, but failed on account of not being able to get a sufficient quantity of it thawed. The hydrometer, however, in what little was obtained, sank slightly below the zero mark; but this might have been due to the fact that the instrument had not assumed the same temperature as the water. Course and distance made good, south 1½ mile. Distance marched, 9 miles. Hours on the march 8½. At lunch, 1.

S. Ey. 3 to 5 c. m.
Temperatures of air:—
6 p.m. + 6°
mid. + 8
6 a.m. +10
Inside tent:—
6 a.m. +34
4 p.m. +29

Tuesday, May 16th.

Commenced the march at 5 p.m. A fine clear day with a fresh breeze from the N.W. Invalids remain in much the same state. Francombe passed a sleepless night, and suffered a great deal of pain in his legs. The rubbing treatment has been discontinued, as it appears to afford no relief, and only causes needless exertion and irritation. Our appetites are still on the decline, and to rather an alarming degree. At breakfast to-day, in one tent, scarcely a pannikin full of pemmican was consumed by the whole party. On the other hand we seem to be assailed by an unquenchable thirst that can only be alleviated at meal-times, as we are unable to spare fuel to make extra water. Halted and camped at 3.15 a.m. Course and distance made good, South 1½ mile. Distance marched, 9½ miles. Hours on the march, 9⅓. At lunch, 1.

N.Wy. 1 to 3 b. c.
Temperatures of air:—
6 p.m. + 7°
mid. + 4
6 a.m. + 5
Inside tent:—
6 a.m. +41
4 p.m. +35

Wednesday, May 17th.

A beautifully sunny day, with a light breeze from the N.E. The sun was so powerful as to cause the temperature to rise inside our tent after supper to 50°, whilst all our foot-gear, etc., which was left outside when we retired, was perfectly dry when put on before breakfast. Started at 6.20 p.m. Invalids are much the same, showing no symptoms of amendment. After serious thought I have resolved, should any more men be compelled to fall out from the drag ropes, upon abandoning the boat. I look upon it as a "*dernier ressort,*" but an imperative necessity. If any more men are attacked, our only chance of reaching the shore before our provisions are expended, will be by lightening our sledges as much as possible, and the first thing to be discarded must be the boat. We must take our chance of the ice remaining stationary, and hope that no disruption will take place before we gain the shore. From my knowledge already of the disease with which our men are afflicted, I am convinced that there is no hope of recovery so long as we remain out. Rest brings no relief; our only hope is to push on and reach Cape Joseph Henry as speedily as possible. The first part of the

lay was occupied in dragging the sledges over our rough road through the hummocks, but at length we arrived on our old friend the large floe, over which we made good travelling. The time and trouble devoted to making a road during our outward journey s now amply compensated for. Lunched on the big floe. Latitude by Obs. Mer. Alt. t midnight, 83° 13′ 32″ N. Angles at the same time :—

Cape Giffard	334°	30′
Peak at Head of Bay	327	0
Cape Parry	316	30
Observation Peak	292	30
Cape Joseph Henry	290	45
Conical Hill	288	0
Mount Pullen	273	0

N.E. 2 b. c.
Temperatures of air :—
6 p.m. + 6·5°
mid + 7·5
6 a.m. + 8
Inside tent :—
6 a.m. +46
4 p.m. +44

"Old Joe," as the men irreverently term Cape Joseph Henry, is looming larger and arker, and we are gradually rising Conical Hill, and Mount Pullen was seen to-day for he first time for some days. Again, strange to say, have we come across the tracks of a are, being fully 23 miles from the land. The traces were almost too indistinct to determine the direction in which the little animal was travelling, but it appeared to be going the northward, and was, like the one observed on our outward journey, evidently orn out and tired, the footsteps being short. Halted at 5 a.m. and camped, having ccomplished a good day's march. Course and distance made good, south, $2\frac{1}{4}$ miles. Distance marched, 12 miles. Hours on the march, $9\frac{1}{2}$. At lunch, 1.

Thursday, May 18th.

Commenced the day's march at 7 p.m. The heat was found to be very oppressive nside the tent, the temperature being as high as 55° ; coverlets are dispensed with and he sleeping bags kept open. The sun is very powerful, and thaws and dries everything hat may happen to be exposed to it resting on a dark substance. The snow on the oes is not yet in any way affected by its influence, but numerous icicles are forming ound the edges of the hummocks. The invalids are very weak and are much subject fainting fits. This faintness usually occurs after performing the functions of nature, uring which operation, so utterly helpless and prostrate are they, that they have to be ssisted in every detail, by two, three, and sometimes four of their companions who are ell. Shirley nearly fainted twice last night after being carried into the tent, and his reath is terribly offensive. Rawlings' legs are slightly swollen, and very much discoloured. Our small modicum of lime juice is nearly all expended, although it has been ost carefully husbanded, and only issued to the sick every other day. At midnight he weather became thick and dull, heavy clouds banking up to the northward, and now began to fall. Several of the snow crystals, which are all of stellar formation and x pointed, were connected together and fell in little masses, a sure sign of a rise of emperature. The travelling to-day has been very heavy, the road being rough and the now deep. On account of the thick weather we had great difficulty in adhering to the ld track, and on several occasions the sledges had to be halted until the trail was picked p on the opposite side of the floe amongst the hummocks. Halted and camped at .30 a.m. ; all much fatigued. Rawlings, Ferbrache, and Simpson very lame. Ominous igns, predicting a movement of the ice, were visible to-day. A crack in some young ice ad perceptibly opened since we passed over it three weeks ago, and layers or flakes of ce from one to three inches in thickness were squeezed up along the crack. Not 200 ards from this rent a large portion of a hummock situated at the extreme end of a floe ad lost its equilibrium and toppled over ; from the marks left in the snow this must ave occurred quite recently. These movements may be attributed to a slight tidal otion, but it is a warning for us to get off the pack as quickly as possible. Course nd distance made good, south, $1\frac{1}{2}$ mile. Distance marched 10 miles. Hours on the arch $10\frac{1}{2}$. At lunch 1.

Wy. 1 b. c.
Ny. 3 o. s.
Temperatures of air :—
6 p.m. + 8°
mid. +10
6 a.m. +19
Inside tent :—
6 a.m. +35
4 p.m. +45

Friday, May 19th.

Started at 6 p.m. A thick overcast day, with snow falling heavily. Travelling ery rough, jolting the invalids considerably. Snow very deep. Passed two more racks in the ice that have opened a great deal since they were crossed on our utward journey. One of these was the opening between two large floes, conclusive vidence that one or other, or both, had been in motion. At 10 p.m. the fog lifted, and he sun shone clear and bright, but shortly after midnight a dense fog rolled down from

Ny. 1 o. s. f.
Temperatures of air :—
6 p.m. 15°
mid. 10
6 a.m. 21
Inside tent :—
6 a.m. 44
4 p.m. 45

the northward, in which we were completely enveloped during the remainder of the day A thick mist or sleet also prevailed that actually wetted us. Halted and camped a 5.15 a.m. Course and distance made good, south 1¾ miles. Distance marched, 11 mile Hours on the march, 10¼. At lunch, 1.

Saturday, May 20th.

Wy. 1 to 4 o. f. m.
Temperatures of air:—
6 p.m. 20°
mid. 21
6 a.m. 23
Inside tent:—
6 a.m. 38
4 p.m. 42

Renewed the march at 6 p.m. A thick foggy day making it extremely difficu to keep to the road. We must endeavour to adhere to it at all hazards. Road ver rough and slippery amongst the hummocks—so much so as to render it no easy matte to maintain our footing. Invalids are much the same, those able to walk being painfull lame. The tea-leaves after lunch and supper are devoured with avidity by the majorit of the party, who are disposed to place faith in the efficacy of this as a panacea for the disease. The hummocks have been deprived of a great deal of their niveous coverin since we last passed them, and have lost in a great measure their resemblance to the to of wedding cakes, and are instead fringed with long icicles, giving them a picturesq and fairy-like appearance. Halted, and pitched tents at 6 a.m. Course and distan made good, South 1¾ miles. Distance marched, 10 miles. Hours on the march, 1 At lunch, 1.

Sunday, May 21st.

Ny. 1 o. f. m.
Temperatures of air:—
6 p.m. 21°
mid. 23
6 a.m. 25
Inside tent:—
6 a.m. 57
4 p.m. 44

In consideration of the long and hard day's work performed yesterday, we did n make a start until 7.20 p.m., allowing the men an extra hour in their bags. A fogg overcast day, and snow falling more or less the whole time. So difficult was it adhere to the old track that on several occasions the sledges had to be halted for a co siderable time whilst the officers pushed on ahead to the opposite end of the floe, a there branching off, one to the eastward, the other to the westward, discover, b skirting along the line of hummocks fringing the edge of the floe, the old cuttin through. This accomplished, they would return to assist in dragging the sledges u The continual strain to the eyes is also most trying. Stopped and pitched tents at 7.1 a.m., after a long and arduous day's work. The sledges appear to drag very heavy, bu whether this is to be attributed to the depth of the snow, the weights on the sledge or the weak state of the men, we are at a loss to decide. Ferbrache can scarcely mo one leg before another; Rawlings, Simpson, and Winstone, are nearly as bad; yet the resolutely maintain their places on the drag ropes. Hawkins fainted while performin the functions of nature, but came round again quickly. All the party are more or le suffering from stiffness and aching bones. Course and distance made good. South, 1 miles. Distance marched, 10 miles. Hours on the march, 11½. At lunch, ¼.

Monday, May 22nd.

N.Ey. 1 to 2 o. f. s.
Temperatures of air:—
6 p.m. 25°
mid. 19
6 a.m. 19
Inside tent:—
6 a.m. 52
4 p.m. 41

After the tents were pitched last night the temperature rose as high as 33, a inside the tent was as much as 61°. Few put on their duffle jumpers, and most l outside their bags. Resumed the march at 7.30 p.m. Another dull, overcast da Several times did we wander off the track, and then, when found, were compelled drag the sledges back to get on the trail again. Floundered through some deep sno drifts, and passed some enormous hummocks. The height of one of the latter that ascended was estimated at over 50 feet, the pocket aneroid determined its height to a little over that measurement. It appeared to be a floeberg, but was so disguised its thick covering of snow that we could only form a conjecture. It was on one si nearly precipitous, and was surrounded by a number of small hummocks and broke floe-pieces. Halted at 5.30 a.m., and camped on some young ice. The temperature so high now that the men get terribly heated whilst dragging, but during a halt, eve for a short time, they soon get thoroughly chilled. Course and distance made goo south, 1 mile. Distance marched, 7 miles. Hours on the march, 9. At lunch, 1.

Tuesday, May 23rd.

Commenced the day's march at 6.20 p.m. The weather still continues dull an cloudy, but not quite so thick and overcast as it has been for the last few days; we a therefore enabled the more readily to distinguish our old sledge marks, thereby savin us a great deal of extra labour and trouble. We can just discern a portion of Ca

oseph Henry and Conical Hill looming through the mist. The men find great difficulty n moving their legs, and are in great pain; it is piteous to see the poor fellows struggling n so bravely, without uttering a murmur or complaint. Some of the legs are terribly liscoloured from the thigh down to the ankle. John Pearson is beginning to complain f his legs; and all are so stiff that the slightest exertion causes great suffering. The ravelling to-day has been fairly easy, although the snow has been very deep in places. Collected for analysis some specimens of discoloured ice from two separate hummocks, of yellowish and brown hue respectively. Camped at 5.30 a.m. Course and distance nade good. South, $1\frac{3}{4}$ mile. Distance marched, $9\frac{1}{2}$. Hours on the march, 10. At unch, 1.

S.Ey. 1 to 3 o. c. s.
Temperatures of air:—

6 p.m.	18°
mid.	14
6 a.m.	16
Inside tent:—	
6 a.m.	52
noon	71
4 p.m.	39

Wednesday, May 24th.

Started at 6 p.m. A bright sunny day, enabling us to follow our tracks with ease. The weather cleared up shortly after camping last night, and the sun shone out bright nd powerful, raising the temperature inside the tent as high as 71°. We all slept out f our bags and discarded the coverlet. The land is plainly visible. We seem to have eared it considerably since we last obtained a good glimpse of it. Several dark patches n the hills give undoubted indications of returning summer, whilst the sides of Joseph Henry are almost destitute of snow. The fore part of the day we were engaged truggling through a long line of hummocks, after emerging from which the travelling ecame comparatively good, and we made fair progress. Being the Queen's birthday, he colours were displayed at lunch time, the "main brace" spliced, and Her Majesty's ealth drunk by her most northern, though not the less loyal subjects. Halted and amped at 6.30 a.m., all rather fatigued. Course and distance made good, south $2\frac{1}{4}$ miles. Distance marched $12\frac{1}{2}$ miles. Hours on the march $11\frac{1}{2}$. At lunch 1.

Ey. 3 to 1 b. c. m.
Temperatures of air:—

6 p.m.	10°
mid.	9
6 a.m.	19
Inside tent:—	
6 a.m.	40
noon	33
4 p.m.	34

Thursday, May 25th.

The fine weather of yesterday was too good to last. To-day there is a great change. Heavy lowering clouds hang all around, a dull and dismal day with a sharp keen wind rom the S.W. Made a start at 7 p m. Great difficulty in keeping to the track, several imes we lost it, and did not succeed in picking it up again without expending much ime and trouble. Travelling over an extensive floe, but with deep snow, with numerous ard snow ridges and hillocks that made the operation of dragging the sledges up very aborious, whilst the coming down is just as bad, as the "cripples" have scarcely time to ump on one side before the sledge is on the top of them. Weather very thick and snow alling heavily. Camped at 6.45 a.m. Ferbrache appears very bad, but pluckily sticks o the drag ropes; not, poor fellow, that he is of much use there, as he can hardly keep ace with us, much less pull; it serves however as a support to him. Rawlings and Simpson are not much better. Out of 34 legs in the whole party we can only muster 1 good ones, even some of these are shaky. Course and distance made good south $\frac{1}{2}$ miles. Distance marched 9 miles. Hours on the march $10\frac{3}{4}$. At lunch 1.

S. Wy. 3 to 5 o. s.
Temperatures of air:—

6 p.m.	13°
mid.	16
6 a.m.	22
Inside tent:—	
6 a.m.	31
noon	28
4 p.m.	30

Friday, May 26th.

Blowing a strong S.W. gale, accompanied by a heavy fall of snow and a dense snow drift. Called the cooks at 4 p.m. and had breakfast, holding ourselves in readiness for a start should weather permit. In this however we were grievously disappointed and were again doomed to a day of forced idleness. To pack the sledges and place the invalids on them without their being almost buried in the blinding snowdrift was quite out of the question, and even if there was a chance of advancing it was impossible to see a sledge's length ahead. This delay causes us great anxiety, as every day, every hour, is of importance to us, as we know not when we may, one and all, be attacked and rendered useless for further work. Detained by bad weather 10 hours.

S.W. 5 to 9 s.q.z.o.
Temperatures of air:—

6 p.m.	20°
mid.	21
6 a.m.	25
Inside tent:—	
6 a.m.	42
noon	40
4 p.m.	38

Saturday, May 27th.

Wind having moderated, we made a start at 6 p.m., after which it gradually died away altogether, the weather remaining thick and gloomy. The snow-drift reached half way up the sides of our tents, and the sledges were completely buried. The large quantity of snow that has fallen renders the travelling very heavy, in addition to which the high temperature, causing a partial thaw, has made the snow assume a sludgy consistency, which clings tenaciously to our legs and sledge runners, making the dragging

very laborious. The men are no better for their rest of yesterday, indeed may be said to be worse. Ferbrache is in great pain, and although useless on the drag ropes, persists at his work. Rawlings, Winstone, and Simpson, are nearly as bad, whilst Thomas Joliffe, Edwin Lawrence, Daniel Harley, and John Pearson, are also complaining. The only two men at present scatheless, with the exception of the officers, being John Radmore and William Maskell. We had barely proceeded half a mile with the advanced sledges before Ferbrache was compelled to fall out, being utterly incapable of keeping up with us. Simpson also had to be relieved as much as possible, and was only able to perform the one journey. This diminution of our force was an event which I was quite prepared for, therefore, on returning to the camp with empty sledges, preparations were immediately made for abandoning the boat and all superfluous weights. Our object now must be to reach the shore as speedily as possible. Abandoned, with the boat, one store bag, the greater part of the ammunition, four 4 gallon spirit cans, one 3 gallon and one 2 gallon spirit can, and 170 lbs. of pemmican, being the amount of our allowance unconsumed. Left the boat as conspicuous as possible, adopting the same means as we did on the previous occasion, and deposited a record in a tin cylinder stating the approximate position of the floe and our reasons for deserting the boat. Re-packed the sledges, and resumed the march after lunch. The travelling very heavy indeed, snow very soft and deep, reminding us more of the state of the snow during the autumn than anything we have experienced this year. The wind has been variable all day, first of all from the S.W., then N., then round to the S.E., then back again to the northward and S.W. But no matter from what quarter it blew, the thick foggy weather persistently clung to us, entirely obscuring the land. Halted and camped at 5·30 a.m. After supper gave Shirley a purgative pill, and Rawlings, Simpson, and Ferbrache, who were suffering from bad colds, a Dover's powder each. Our appetites are still on the wane, scarcely more than half a pannikin of pemmican is consumed by any one individual at either meal; some go without altogether, and these latter in consequence are not allowed to smoke or to have their grog. As we possess a surplus of bacon, this is issued in addition to the pemmican, to those who wish it. Course and distance made good, south 1 mile. Distance marched, 6 miles. Hours on the march, 9½. Detained abandoning boat, 2 hours.

Variable 1 to 3 o. s.
Temperatures of air:—
6 p.m. 26°
mid. 17
6 a.m. 22
Inside tent:—
6 a.m. 38
noon 51
4 p.m. 48

Sunday, May 28th.

Yesterday, a bird was seen by a few of the sick men who were remaining by the advanced sledges whilst the party were returning for the heavy sledge, which from their description appears to have been a turnstone. It alighted close to them, but although very tame would not allow itself to be captured. The weather still remains thick and snow continues to fall. Struck camp and packed the sledges, having the weights so distributed, including the weight of the sick men that were carried, that we had 1,800 lbs. on the large sledge, whilst the two others were loaded to about 800 lbs. each. By this arrangement we were enabled to single bank the two light sledges, having five hands to drag each, then return and drag on the heavier sledge with the whole party. Commenced the march at 8 P.M., our start being considerably delayed in consequence of Shirley fainting after performing the functions of nature. He was with difficulty brought round again, but not until a strong dose of spirit of ammonia had been administered to him. Porter complained a good deal of his groins last night, having been shaken on the sledge, but this morning they are easier. Rawlings' legs are very bad indeed, in appearance they are infinitely worse than those who have been suffering a much longer time, but he bears up wonderfully well and resolutely sticks to his work. Radmore and Maskell are also complaining. Out of the entire party the officers are the only ones remaining untouched. The weather cleared up slightly after lunch, and the sun made vain efforts to pierce the clouds and murky atmosphere, and the land was occasionally seen. Travelling across the heavy floes and the young ice, over which we journeyed on the 21st ult, the snow drifts are far deeper and more frequent now than then; pools of water were forming between the snow-drifts, and a large quantity of sludge was encountered, that made the travelling very disagreeable. These pools of water were all brackish. Halted at 5.30. A.M., and camped on a heavy floe surrounded by young ice; all hands much fatigued, and complaining lamentably of their poor legs, the march having been a very trying one in consequence of the deep snow through which the sledges had to be dragged. "Standing pulls," and the incessant "one, two, three, haul," was the order of the day. Shortly before the tents were pitched, much excitement was caused by the appearance of a little snow bunting, which fluttered around

Variable o. c.
Temperatures of air:—
6 p.m. 17°
mid. 19
6 a.m. 8
Inside tent:—
6 a.m. 34
noon 55
4 p.m. 42

s for a short time, uttering its to us rather sweet chirp, and then flew away to the orthward and westward, in the direction of Cape Joseph Henry. This was an event of o small interest to our party, as it was the first bird seen by the majority for a period f nine months; even the sick men on the sledges requested they might have their eads uncovered and lifted, so as to obtain a glimpse of the little warbler. Gave Hawkins a purgative pill. Course and distance made good, South 2 miles. Distance arched, 7½ miles. Hours on the march, 9. At lunch, ½.

Monday, May 29th.

Great delay caused again in starting by the invalids, Pearce fainting in the same anner as Shirley did yesterday. The march was commenced at 8.30 P.M. Porter has nasty cough which hurts his chest. Pearson is suffering from a swollen testicle, in dition to bad legs, and is unable to drag, therefore has to fall out. He complained last ight of his left testicle being swollen, but causing him no pain; it was triced up, and upported as much as possible. Ferbrache is still able to hobble after us with the aid of staff. The others are decidedly getting worse, but persevere doggedly at the drag-opes. A glorious day, with the sun shining brightly, which we appreciate the more as e have been so long deprived of its presence. The temperature, however, is as low as °. At lunch time the colours were again displayed and the "main brace" spliced, to ommemorate the first anniversary of our departure from England. The snow-drifts are ncommonly deep, compelling us occasionally to shovel a passage through before we can dvance the sledges. Got on to the heavy floe on which we had left our 20-ft. ice-boat n the 19th of April, and pitched our tents alongside the boat at 5.15 A.M. Found her xactly as she had been left, but surrounded by an embankment of snow. Lightened ur loads by depositing in her 30 lbs. of biscuit that we do not require. Course and istance made good, South 2 miles. Distance marched, 7 miles Hours on the march, 8. t lunch, ¾.

Calm b. c. m
Temperatures o air:—

6 p.m.	6°
mid.	4
6 a.m.	15
Inside tent:—	
6 a.m.	36
noon	43
4 p.m.	28

Tuesday, May 30th.

Struck tents and proceeded at 8.15 P.M. Our usual weather has returned—thick g and snow falling. Before lunch a strong breeze sprang up from the N.W., which uickly freshened into half a gale of wind. This with a dense snow-drift compelled us to alt and pitch our tents at 5.15 A.M. on the southern edge of a large floe, having com-letely lost our track. Walked with Parr for a long distance along the fringe of hum-ocks skirting the floe, but failed to discover our old cutting through. The travelling as been very heavy during the day on account of the deep snow. Course and distance ade good, South, 1½ mile. Distance marched, 6 miles. Hours on the march, 8½. At nch, ½. Detained by thick weather, 1½.

N.W.3 to 6 o.q.s.z.
Temperatures of air:—

6 p.m.	20°
mid.	15
6 a.m.	17
Inside tent:—	
6 a.m.	29
noon	49
4 p.m.	38

Wednesday, May 31st.

Struck camp, and started at 8 P.M. Parr and myself having previously walked on endeavour to find the old route, which we luckily succeeded in doing, being, as we nticipated, more than half-a-mile to the westward of it. To regulate the course by eans of a pocket compass only is no very easy matter. Our invalids still go on radually getting worse. Ferbrache and Pearson, with the assistance of staves, can ust stagger after us. Simpson pluckily remains at his work, but is only able to ccomplish the one journey. Harley's legs are very much discoloured, and cause great ain. We are a perfect band of cripples. Shortly after starting a westerly gale sprang p, producing great drift, and snow commenced falling heavily. When halted for nch we rigged up weather screens, &c., to protect us from the wind and blinding drift, ut it was of no avail, we *could* not shelter ourselves. Crossed a fringe of hummocks, hich had evidently been in motion since we passed them on our outward journey, but hat was still more alarming, whilst dragging the sledges over a small patch of young e the heavy sledge broke through, and we had no little trouble in saving it from a mplete immersion, which might have resulted seriously to one of the unfortunate valids who was securely lashed on the top. As it was, the whole of the rear part of e sledge was immersed in the water. The thickness of this ice was only three or ur inches. The wind freshening into a strong gale, and blowing upon us with all its ry, precluded any further advance, and necessitated a halt at 3.15 A.M., being then nable to distinguish more than a couple of sledges' length ahead. Great difficulty as experienced on account of the strong wind, and the few available hands left, in

Wy 4 to 9 o.q.z.s.
Temperatures of air:—

6 p.m.	21°
mid.	24
6 a.m.	25
Inside tent:—	
6 a.m.	31
noon	38
4 p.m.	36

pitching the tents. We were all wet through, and very wretched and uncomfortable, the falling snow and drift thawing on our clothes as quickly as it fell. Course and distance made good, South ½ mile. Distance marched, 4 miles. Hours on the march, 6½. At lunch, ¾. Detained by bad weather, 3.

Thursday, June 1st.

N.W. 2 to 5 o.s.q.z.
Temperatures of air:—
6 p.m. 31°
mid. 33
6 a.m. 34
Inside tent:—
6 a.m. 42
noon 54
4 p.m. 48

The wind subsided considerably during the night, although the weather remained as thick as pea-soup, and snow and wind squalls were prevalent. It was 8.30 P.M.—so long does it take us now to effect a start—before we were fairly under way, the delay being partly caused by Hawkins' fainting away. It is absolutely painful to witness the poor fellows hobbling along, yet doing their utmost to be cheerful. Our old track is completely obliterated, and it is only occasionally by seeing evidences of our former journey, such as bits of tobacco, tin pots, &c., that we know we are still adhering to it. There is much sludge on the young ice, which, besides wetting our feet, cause the sledges to hang considerably. Travelling altogether very heavy. Snow in places up to our waists, and very wet between the hummocks, our foot-gear being literally soaking. Halted and camped at 5.15 A.M. Course and distance made good, South 2 miles. Distance marched, 7½ miles. Hours on the march, 8. At lunch, ¾.

Friday, June 2nd.

N. Wy. 4 to 1 o. s.
Temperatures of air:—
6 p.m. 32°
mid. 32
6 a.m. 31
Inside tent:—
6 a.m. 46
noon 58
4 p.m. 54

A sad list of sick this morning. Rawlings and Simpson completely done up, and utterly incapable of further work. It is marvellous how they have kept on so long. The legs of the former appear very bad indeed, and are greatly discoloured; an old wound in the fleshy part of the calf seems inclined to break out, and gives him great pain. Lawrence is also attacked in his arms as well as his legs. Packed sledges and marched at 7.45 P.M. We are now reduced to only six men, and they anything but healthy or strong, and two officers. Five men are carried on the sledges, and four can just manage to crawl after. Our routine is first to advance the heavy sledge, which is dragged by the whole available party, namely, eight; then return and bring up the other two sledges, single banked, four dragging each, A thick foggy day, and snow falling heavily. Travelling very bad, deep snow-drifts and thick sludge between the hummocks. The weather has at last proved triumphant, and has robbed us of our road. The track was lost, despite our utmost efforts to adhere to it, shortly before lunch, and we have now to renew the arduous task of road-making. Unless the weather clears sufficiently to enable us again to pick up our track, our intention is to make straight for the land in the direction of the Snow Valley.

6 A.M. Stopped and camped on a small floe completely surrounded by hummocks, through which we had to cut our way. All complain of weakness and fatigue. The poor fellows are dragging over 200 lbs. per man, and that through deep snow or sludge. Simpson and Ferbrache have each bad coughs; the latter appears to have a slight affection of the chest. Gave each a Dover's powder in a small quantity of warm tea. Porter complaining of pain in the stomach, a dose of Gregory's powder was administered to him. Course and distance made good, South 1¾ mile. Distance marched, 6½ miles. Hours on the march, 9¾. At lunch, ½.

Saturday, June 3rd.

Ny. 2.
Wy. 2 o.s.
Temperatures of air:—
6 p.m. 31°
mid. 30
6 a.m. 30
nside tent:—
6 a.m. 54
noon 68
4 p.m. 56

Parr and myself started at 7.45 P.M. to select a route, leaving a party of three road-makers to follow and cut a road in our footsteps, the remaining three to strike the tents and pack the sledges. A dull overcast day, we can just however see the land, and this enables us to steer a straight course through the hummocks. Our way lay entirely through hummocks with no appearance of a floe of any dimensions. The road being completed, the sledges were advanced until more hummocks were encountered, when the same system was adopted. It was *very* hard work. At 5 A.M. we succeeded in reaching a magnificent floe, on which we camped about half-way across. At 6.15 A.M., Parr and myself walked over to its opposite side, but the weather was too thick for us to see if there were many hummocks intervening between it and the shore. Course and distance made good, South 1¼ mile. Distance marched, 6½ miles. Hours on the march, 10. At lunch, ½.

Sunday, June 4th.

Packed sledges and resumed the march at 8.30 P.M. The weather clear enough for to distinguish the land distinctly, although the tops of the hills were obscured by st. The invalids are steadily but surely getting worse. Simpson's legs are very ggy, and we are momentarily expecting him to break down altogether; the more that keep off the sledges the better for all. Shortly after starting we were again eloped in a dense fog, through which the sun made ineffectual efforts to penetrate. riving at the edge of the large floe, we had to cut through a long fringe of hummocks, n winding about amongst snow-drifts and young ice, through deep sludge, emerging a small floe on which we halted for lunch. A skua flying lazily about, apparently ering in a N.W. direction or towards Conical Hill, excited a good deal of interest. mediately after lunch set all hands to work in making a road through the hummocks ich lie between us and the shore. They are evidently the fringe of shore hummocks dering the coast line. Leaving the road-makers to follow in our track, Parr and self pushed on for the shore which was reached in about half an hour. We here served the recent traces of a dog-sledge and human footsteps. We, therefore, termined upon walking on to the depôt on the chance of there obtaining some istance for our poor scurvy-stricken men. Observed the tracks and heard the wling of a wolf, but did not succeed in seeing it. On reaching the depôt we learned, our disappointment, that the Captain, May, and Feilden had only left for the ship the evious day. This was very unfortunate. Twenty-four hours earlier and we should ve met them. They had obtained three hares which they kindly *cached* in a crevice med between two hummocks for our use. Taking our letters, and carrying the hares, returned to our party, and the road being completed the sledges were dragged rough and the tents pitched for the night on a small piece of ice, about 300 yards from e shore at 7 A.M. Course and distance made good, S.S.W. $\frac{3}{4}$ of a mile. Distance rched, $4\frac{1}{2}$ miles. Hours on the march and at work, $9\frac{3}{4}$. At lunch, $\frac{1}{2}$.

Calm f. b. c.
Temperatures of air:—
6 p.m. 32°
mid. 31
6 a.m. 23
Inside tent:—
6 a.m. 56
noon 70
4 p.m. 54

Monday June 5th.

A beautifully bright clear day. To see the sun again in all its glory is indeed a treat, it ems to invigorate us all, and appears even to instil new life and energy into the invalids. r supper last night consisted of a hare to each tent, which was much relished and ll doubtless do good. Porter, however, could eat scarcely anything, and appears to be tting weaker, though up to the present time he has been able to help himself better an the others who have to be carried, and his pulse is still strong; to-day he complains not being able to lie on his left side, as it affects the action of the heart. In consequence of r sumptuous meal last night, and the time we took in preparing the repast, no less than r hours, the cooks were not called until 7 P.M., and the invalids causing a delay, a start s not effected until 10 o'clock. By 11 we were all once more on *terra firma*, after an sence of over two months, but with the prospect of a heavy drag through the deep snow, the base of View Hill. Halted for lunch at 2.30. A strong S.W. gale sprang up just before lting, which did not add to the comfort of our meal; had excessively hard work in agging the sledges through the deep snow on the incline of the hill; blowing very hard, e squalls exceedingly violent with a blinding snow-drift. 6.30 A.M., halted and camped ose to the shore hummocks, abreast of the depot; blowing too hard to attempt getting r provisions from the depôt, and with difficulty pitched our tents and crawled into our gs; the difficulty was much increased by Hawkins being suddenly seized with diarrhœa st as the tents were being got up, and he had to be taken off the sledge and allowed ease himself, though half smothered with drift; he had had an attack before lunch, so was given a chalk-and-ginger powder, which fortunately had the desired effect. Wind nusually cold. Course and distance made good, South $1\frac{1}{4}$ mile. Distance marched, miles. Hours on march, 8. At lunch, $\frac{1}{2}$.

N.W. 4 to 9 b.c.q.z.
Temperatures of air:—
6 p.m. 26
mid. 21
6 a.m. 20
Inside tent:—
6 a.m. 21
noon. 26
4 p.m. 41

Tuesday, June 6th.

Wind moderated during the night, but not before it had nearly blown our tent own; one of the bow lines gave way, and a tent pole started, and we were omentarily expecting to have our house down about our ears; fortunately for us it sisted all efforts. We should have been in a pretty predicament with all our helpless es had it fallen. At 6.30 P.M., took from the depôt all the groceries and bacon eposited there for us, leaving untouched the pemmican and spirits, also all our leather d travelling boots, which were abandoned in order to lighten our loads. Struck tents,

Northerly 1. b. c.
Temperatures of air:—

6 p.m.	23°
mid.	24
6 a.m.	25
Inside tent:	
6 a.m.	36
noon	70
4 p.m.	74

packed sledges, and proceeded at 9.30, the invalids steadily getting worse. Winstone will scarcely last the day, and is of very little use on the drag ropes; but he perseveres bravely. Pearson is hardly able to crawl after us, and, with Rawlings, Ferbrache and Simpson, is compelled to lie down and rest every 30 or 40 yards. Working our way along the old sledge tracks through the hummocks; these are occasionally covered with heavy snow drifts, through which a road has to be made with shovels. Reached a fair sized floe at 5.30 A.M., and camped, all hands thoroughly fatigued, having been at work for fully 12 hours. Having diverged from the right track, being led adrift by the track of some wandering sledge, Parr and myself, while the tents were being pitched and supper preparing, walked on to recover the traces; this, after some trouble, we succeeded in doing, returning to camp shortly after 7. During the latter part of the day, to our great surprise, one of our Eskimo dogs was seen threading her way slowly through the hummocks; on being called she approached somewhat timidly, but ate ravenously of some pemmican that was thrown to her. Poor Flo! she is wretchedly thin and emaciated; she must have escaped from the Captain's dog-team. After a long consultation with Parr it has been resolved that he shall proceed to-morrow morning, if fine, and walk to the ship. Our only chance of saving life is by receiving succour as soon as possible. Although the distance from us to the ship is nearly 40 miles, over floes covered with deep snow, and girt by heavy hummocks, he has nobly volunteered to attempt it, and has confidence in being able to accomplish it. He is the only one of the party strong enough to undertake such a march, and I have the utmost confidence in his judgment and ability to perform it. Course and distance made good, South, $1\frac{1}{2}$ mile. Distance marched, $5\frac{1}{2}$ miles. Hours on the march and at work, 11. At lunch, $\frac{3}{4}$.

Wednesday, June 7th.

Calm. b. c. f. m.
Temperatures of air:—

6 p.m.	30°
mid.	33
6 a.m.	33
Inside tent:—	
6 a.m.	55
noon	58
4 p.m.	53

A bright sunny day; the sun so powerful, although the temperature of the air was 2° below freezing point, as to raise the temperature in my tent to 82°, rendering it almost unbearable. The closeness and offensiveness of the smell was above description. Having written to Captain Nares, Parr started off as lightly accoutred as possible at 7.15 P.M. We all wished him God speed, and will be anxious to hear of his safe arrival. All hands appear very stiff and in pain. Winstone is unable any longer to work on the drag ropes, and has to join our tail of "hobblers" in rear of the sledges. Flo, the Eskimo dog, has joined our band of invalids; she appears very weak and walks carefully in the tracks made by the sledge-runners. Struck camp, packed sledges, equalizing the weights on the three, and proceeded at 8.15 P.M., dragging the sledges along one by one. We are pulling 220 lbs. per man, and, as the snow is very deep, we find it hard work. Porter is very low, and is undoubtedly in a very precarious state, having been attacked last night by several very violent fits of coughing and retching, which strained him severely. Hawkins is also very weak, having had a severe attack of diarrhœa. His case seems to be as bad as Porter's. After lunch, our usual weather overtook us, and the land was entirely concealed by the fog. This increases our anxiety about Parr. Abandoned 56lbs. of pemmican, leaving it on the floe, in order to reduce our weights. Porter has been complaining a great deal since lunch, and I do not at all like his symptoms—violent retchings and a great desire to perform the functions of nature without however the power to do so, although we halted on several occasions for the purpose. I fear he is in a very critical state. His bowels were moved shortly before halting, to his great relief. In his weak state I did not feel authorized in assisting him by administering an aperient. Halted and camped at 5.15 A.M. As there was only one man capable of performing cook's duties in the "Victoria's" tent, and three in mine, I sent Radmore to them as one of their crew. Course and distance made good, South $1\frac{1}{4}$ mile. Distance marched, 5 miles. Hours on the march, $8\frac{1}{4}$. At lunch, $\frac{3}{4}$.

Thursday, June 8th.

Poor Porter is no more! After halting last night he was placed as usual in his tent, where I visited him before supper. He said, in answer to my inquiry, that he was easy and comfortable, and appeared to be more cheerful and talkative. Before I had quite finished my supper, I was called in haste to his tent, where I found him suffering from a spasmodic attack of some nature, and quite unconscious: this was about 8 o'clock (A.M.). He was revived by having his nostrils bathed with spirit of ammonia, and then a little rum, slightly diluted with water, was given him, when he regained consciousness. His breathing was short and stertorous; he complained very

h of a difficulty in breathing, and appeared to be sinking fast. Two hours after he a a similar attack, and was again brought round by the same means ; but he seemed e much exhausted, although between the two attacks he had enjoyed a short doze. r this he sank rapidly, and expired, with my finger on his pulse, at 10 minutes 12 (noon). He was sensible to within a few minutes of his death, and his end was and quiet. This is a sad calamity, although we were not totally unprepared for it, I fear the depressing moral effect that this lamentable event will have on those who very sick, and who consider themselves to be in nearly as precarious a condition. body was removed from the tent, and placed on an empty sledge. Called the cooks .30 P.M., and, having read prayers in both tents, selected a spot for the grave in a snow-drift, not many yards from the camp. Here the grave was prepared by ing down through six feet of hard frozen snow until the surface of the floe was hed, and then two feet further down into the solid ice. The corpse, which had lled up considerably and was terribly disfigured after dissolution took place, was n up in a sleeping bag, and laid on a sledge. With the ensign half-mast, and the on Jack as a pall, the funeral procession, attended by all but the four very bad s, started at 9, and the burial-service being read, the remains were consigned to r last icy resting-place in this world. Improvising a rude cross, formed with a 's oar and a spare sledge-batten, it was placed at the head of the grave, with the wing inscription :—"Beneath this cross lie buried the remains of Geo. Porter, .A., who died on June 8th, 1876. Thy will be done." Of all the melancholy and rnful duties I have ever been called upon to perform, this has been the saddest. A h in a small party like ours, and under the present circumstances, is a most ressing event, and is keenly felt by all. During the service all were more or less ted, and many to tears. I hope I may be acquitted of the charge of having ormed the last rites with indecent haste, but I considered my duties to the living ld outweigh my sentiments for the dead ; and that it was of paramount importance, rder to guard against a repetition of the sad scene of to-day, that we should use our ost endeavours to reach the ship as speedily as possible. 9.45 struck tents and ched, being anxious to get the men away from a spot connected with such sorrowful gloomy associations. The weights on the sledges have been again re-distributed, and find that by dragging 270 lbs. per man we can avoid making the five journeys. The e sledge, on which are stowed all the provisions, the two tents, and the other gear, rst advanced by the whole party, six in number. We then return and drag on the two r sledges, on each of which are our tent robes, bags, knapsacks, and two invalids, two and myself dragging one, three men the other. The day has been dull and my, with a thick mist, and this, combined with a slight fall of snow, completely ted us. Glimpses of the land could only be obtained at intervals. The travelling been to-day fairly good, undoubtedly the best we have experienced for the last two ths, although, in consequence of a partial thaw, the snow is very soft and cious, clinging to the sledge-runners like clay, making it extremely difficult to effect tart, though, when once the sledges were in motion, they went along easily enough. casins, although admirably adapted for use in any temperature below freezing, do answer so well with this kind of travelling, with a temperature above 32°, and our -gear has been wringing wet all day. Halted and camped at 4.30 A.M.. Course and ance made good, South $1\frac{1}{2}$ mile. Distance marched, 5 miles. Hours on the ch, $6\frac{1}{4}$. Detained by funeral, 2. At lunch, $\frac{1}{2}$.

Calm o. m.
Temperatures of air :—

6 p.m.	37°
mid.	36
6 a.m.	37
Inside tent :—	
6 a.m.	58
noon	51
4 p.m.	38

Friday, June 9th.

As the majority of my sledge crew were unable to eat their pemmican, we tried for akfast this morning a new dish, consisting of preserved potatoes and bacon fat mashed ether. In flavour, if any was perceptible, it rather resembled starch, but was accept- e as a change, and we each consumed two-thirds of a pannikin. A wild thick day, with esh breeze from the northward. Invalids in a very depressed state, notwithstanding efforts made to cheer them. Started at 9 P.M.. Same system of travelling as that pted yesterday. All eyes eagerly directed to the southward, the quarter from which are anxiously expecting succour. We had advanced the heavy sledge one stage, and just returned to drag up the two smaller ones, when something moving between the mmocks was espied, which from its rapid motion was soon made out to be the dog- lge. Hoisted colours. The men appeared quite carried away by their feelings, and vas with difficulty they could muster up a cheer as May and Moss arrived and shook heartily by the hands. Our delight was enhanced on being informed that they were

Ny. 5 to 2. o. c. m.
Temperatures of air :—

6 p.m.	27
mid.	25
6 a.m.	31
Inside tent :—	
6 a.m.	42
noon	54
4 p.m.	58

only the advance of a larger party coming out to our relief, headed by the Captain himself, and nearly all the officers. A halt was immediately ordered, cooking utensils lighted, water made, and we were soon all enjoying a good draught of lime juice, with mutton for supper in prospective. Our spirits rose wonderfully, and, as if nature also wished to participate in our joy, the weather began to break, and the sun shone out. Resumed the march, May pushing on with his dog-sledge, and camping about half a mile to the southward of us, they not having rested for many hours, so eager was he to afford us relief. The travelling was very good, and we got along famously, every one apparently much invigorated, cheerful, and in good spirits. Halted and camped about a quarter of a mile from May's tent at 3.30 A.M., in order that the party should undergo a thorough medical inspection by Moss. His report was to the effect that the entire party were afflicted with scurvy, some being in a very precarious condition. Course and distance made good, South 1 mile. Distance marched, $3\frac{1}{2}$ miles. Hours on the march, 6. At lunch, $\frac{1}{2}$.

Saturday, June 10th.

N.W. 2 to 4. c. m.
Temperatures of air:—
6 p.m. 28°
mid. 29
6 a.m. 27
Inside tent:
6 a.m. 38
noon 48
4 p.m. 52

May came up with his dog-sledge whilst we were having breakfast. Wrote a note, and despatched him to meet Captain Nares, retaining Moss, who takes Parr's place. Struck camp, and proceeded at 7.30 P.M. All are in better spirits, and Winstone is even able occasionally to afford us a little assistance in dragging. We all, including the sick, consumed and relished our pannikin full of ox-cheek and mutton that we had for supper last night, and agreed that it was one of the most delicious repasts that we had ever partaken of. Had not advanced very far before Pearson, being quite helpless and unable to walk, had to be placed on a sledge. Shortly after, the dog-sledge again hove in sight, returning with some hands to assist us. The new arrivals, amongst whom was Egerton, tackled on to the big sledge, whilst my own party dragged the two others as before, three to each. This is the first time since we left the ship that we have been able to advance without having to return for the purpose of bringing up another sledge. After lunch, sighted the main party coming towards us. Hoisted colours. 12.45. Met the Captain and the remainder of his party, from all of whom we received a warm and kind greeting. No time was wasted in asking questions, but the march renewed—my party, the lame ducks, dragging one sledge, the relief party dragging the other two, the invalids who had been walking being put on the dog-sledge. Halted and pitched tents at 3.30 A.M., May pushing on to Depôt Point with the dog-sledge, taking with him Thomas Rawlings and John Pearson. Thomas Simpson, who had been carried on the sledge since meeting the relief party, was frost-bitten in two toes and the ball of his foot, but circulation was soon restored. Temperature at the time 27°. Four geese, shot by Egerton yesterday, afforded us a magnificent supper. Course and distance made good, South $3\frac{1}{4}$ miles. Distance marched, 6 miles. Hours on the march, $7\frac{1}{4}$. At lunch, $\frac{3}{4}$.

Sunday, June 11th.

Calm. o. s.
Temperature of air:—
6 p.m. 36°
mid. 37
6 a.m. 33
Inside Tent:—
6 a.m. 54
noon 59
6 p.m. 56

Started at 8·15 P.M. in the same order as yesterday, my own party consisting of Lawrence, Joliffe, Radmore, Harley, and Maskell, working independently of the others. Winstone follows after us, the remainder of the invalids being carried on sledges and dragged by the relief party. May rejoined, shortly after we started, with the dog-sledge, and returned at once to Depôt Point, taking with him Thomas Simpson and William Ferbrache. A cloudy day, snow falling slightly. Rounded Depot Point at 1.30 A.M., and reached the Captain's encampment at Cane's Folly at $\frac{1}{2}$ past 2. Halted and pitched tents. Course and Distance made good, South 6 miles. Distance marched, $6\frac{1}{2}$ miles. Hours on the march, 6. At lunch, $\frac{3}{4}$.

Monday, June 12th.

Calm c. m.
Temperatures of air:—
6 p.m. 37°
mid. 27
6 a.m. 37
Inside tent:—
6 a.m. 57
noon 67
6 p.m. 56

A dull cloudy day. Struck tents and packed sledges at 8 P.M. At $\frac{1}{2}$ past 7, May went on with dog-sledge to the ship, taking Shirley and Pearson. 7.30, started with my sledge, the relief party following shortly after, carrying six of my sick men. At 1.30 passed the boats. The travelling all day has been remarkably good, and we succeed in getting along famously; our only difficulty is in going through deep snow, when the men, their legs being so bad, are compelled to stop and drag their legs out of the holes into which they sink. Winstone, with the aid of a staff, manages to keep up with us. 4.15. Passed Harley Spit. 5. Halted and camped amongst the hummocks in Ravine Bay. Course and distance made good, S.E. 11 miles. Distance marched, $12\frac{1}{2}$ miles. Hours on the march, $9\frac{1}{2}$. At lunch, 1.

Tuesday, June 13th,

Struck camp and proceeded at 6 P.M. Legs *very* stiff, but the idea of soon getting on board the ship acted as a good restorative. Lawrence and Harley are very bad. Observed the dog-sledge coming over Mushroom Point. Hoisted colours. Met May at 8 o'clock. Sent Winstone, Lawrence, and Harley to the ship on his sledge, May leaving one of his men, Thornback, to assist in dragging our sledge. Arrived on Mushroom Point at 8.30. Deposited, in tent pitched there, all provisions. Resumed the march, arriving alongside the ship, with the relief sledges in company, at half-past one on the morning of Wednesday the 14th June. Out of my original party of fifteen men, three only, namely, John Radmore, Thomas Joliffe, and William Maskell, were capable of dragging the sledge, the remaining eleven having been carried alongside on the relief sledges. Course and distance made good, S.E. 9 miles. Distance marched, 10½. Hours on the march, 6½. At lunch, 1.

Calm b. c.
Temperature of air:
6 p.m. 36
Mid. 30

Number of marching days absent from the ship	72
Outward journey—	
Number of miles made good	73
„ geographical miles marched	276
„ statute miles marched	318
Homeward journey—	
Number of miles made good	71
„ geographical miles marched	245
„ statute miles marched	283
Total number of miles made good	144
„ geographical miles marched	521
„ statute miles marched	601

H.M.S. "Alert," Winter Quarters,
3rd April, 1876.

MEMO.

On the departure of the spring travelling parties, you will accompany them in medical charge of the division.

In addition to the above-mentioned duties, having handsomely volunteered for the service, you are to take executive command of H.M. Sledge "Bulldog," and in that capacity act in obedience to the orders of Commander A. H. Markham, who is in command of the party about to proceed to the northward over the ice.

On your being detached, the officer and crew of H.M. Sledge "Alexandra" will be under your orders. With the two parties united, you are to return to the ship with such dispatch as the state of the weather will allow.

I wish you also to transport the small ice boat from the Boat Depôt to the ship.

G. S. NARES,
Commanding Expedition.

To
Dr. Edward L. Moss.

1st July, 1876.

Sir,

On the departure of the spring travelling parties from H.M.S. "Alert" on 3rd April, 1876, I, in accordance with your instructions, accompanied them as Medical Officer, taking command of H.M. Sledge "Bulldog" in connection with the Northern Division. On being detached, and having exchanged two of the "Bulldog's" crew for men of the advancing sledges whose health had broken down, I returned to the ship with that sledge and crew, and with the officer and crew of H.M. Sledge "Alexandra." Subsequently, with H.M. Sledge "Bulldog," and a re-arranged crew, I laid out depôts for the Western Division on the site at Cape Joseph Henry agreed upon in the previous trip.

When, after Lieutenant Parr's arrival, relief sledges left this ship to succour Commander Markham's crews, I went in advance as Medical Officer with Lieutenant May and the dog sledge, and gave them such assistance as lay in my power, during their return to the ship.

3rd April.

First March. After the usual preliminary exercises and inspections, a detachment of fifty-three men and officers left the ship on 3rd April, 1876, for northward and westward exploration.

On camping after our first day's march, I found that my intended inspection of all the men's feet would entail so much delay in shifting their foot-gear, that it would rather cause than prevent injury from frostbite. It is easy to look after all one's own tent-mates, but with our seven crews, all changing together, the utmost I could do was to visit each tent, see the feet of those who happened to be changing, and accept the inspection of the officer in charge for the remainder. On this occasion we had no frostbites, though the temperature was very low (—33° and below), and there was the delay in getting into sleeping bags inseparable from a first night in an Arctic tent.

During the night almost every crew had men suffering from muscular cramp in the legs, thighs, and abdomen. We nearly all had more or less of it, but it usually went off when we got warm in our bags. I subsequently found that the more obstinate cases were always relieved and often cured by a little opium (*i.e.*, half of a six centigramme square of gelatinized opium equal to ·4 grain).

4th April.

During our second day's march, Ice Quartermaster James Berrie, Captain of Lieutenant Giffard's sledge, showed so much fatigue, that I found it necessary to recommend his relief. On camping, Joseph Good, Captain of Lieutenant Aldrich's sledge, found the three outer toes of his right foot frostbitten. The temperature had varied between —35° and —27°. They were slowly brought round by holding them in our sufficiently cold hands; taking care rather to protect them from cold, than supply them with heat.

5th April.

The same toes were again bitten next day, but less obstinately, and the man felt fatigued and dyspeptic, a state of things which had probably more to do with the frostbite than any differences of a few degrees of temperature. A little "Gregorie's Powder" and aromatic spirit of ammonia made him feel less uncomfortable, and he was able to pull next day. Elias Hill, a marine of the same crew, suffered from eructations and pains about the liver and spleen. The pains were lower than those caused by the drag-belt in men unused to it.

6th April.

Next day Lieutenant Aldrich, whose detachment was about 1,000 yards behind ours, was obliged to camp, as Hill was worse, and Colour-Sergeant Wood was disabled with exhaustion, colic, and vomiting. When I reached their camp, both men were asleep, and I did not disturb them, for I could not improve on Lieutenant Aldrich's prompt treatment with mustard plaster, Gregorie's powder, and a stimulant. Berrie was no better, though he made no special complaint. He had been for some time in but feeble health, and now his despondency, feebleness, and fœtid breath indicated some scorbutic taint, which I thought had possibly originated in the whaling service.

On returning to the "Bulldog's" tent, I found Cranstone's left heel frostbitten. He first felt numb during the halt for lunch. It recovered readily. The temperature this evening was — 41°.

7th April.

On the morning of our fifth day from the ship, the four-man sledge was detached, and receiving William Malley from its crew, I sent Ice Quartermaster Berrie back to the ship. If the strength of the returning crew admitted of it, Hill would have gone back also, though he is improving under quinine. His symptoms are, I think, a consequence of his illness during the late Ashantee campaign.

8th April.

On 8th April there was some difficulty in finding a good road through the hummocks off Point Hercules. Captain Markham and Lieutenant Parr, on whom this duty devolved, began to show symptoms of snow blindness. Scalding and swelling of the skin over the cheek bones, bloodshot and watering eyes, with contracted pupils, were to be seen amongst the men also. I therefore recommended the universal adoption of goggles in future. Lead acetate lotion was very soothing to the hot swollen eyes, and a minute film of Calabar bean gelatine relieved the pain.

Several of the men had herpetic blebs at the angles of their mouths, such as children have when they catch cold, sun-cracked noses and lips were common, but with the aid of a little benzoated lard we could afford to despise such small ills.

9th April.

Next day it became necessary to relieve Lieutenant Parr from pioneering duties, and Captain Markham and I picked out the road. Goggles cannot be continuously worn at this work, and the constant strain to detect faint differences of level and distance in the white blank ahead is most trying. Cane, of the "Alexandra" sledge, became so fatigued that he had to be relieved from the drag-belt for a time.

10th April.

On 10th April the tents were left pitched within reach of the Joseph Henry depôt, and Lieutenant Parr and Reuben Francombe remained in one of them, to give their eyes the full benefit of a rest. Francombe's right eye only was disordered. A compress and bandage gave it much relief.

In Lieutenant Aldrich's detachment, Good and Wood were again in their places at the drag-belt, and Hill was able to keep well in advance of the double banking sledges. Two officers and several men feel the soreness of the tendon Achilles, caused by the heelless moccasin.

11th April.

Before commencing our ninth march, it was arranged that H.M. Sledges "Bulldog" and "Alexandra" would assist the Northern Party till lunch time, and then start on our return journey to the ship. I therefore went through the men, saw the feet that had been frostbitten, &c., and found nothing to discourage advance in any of the men of the extended parties. Good and Wood were apparently well, and all were eager to proceed.

Mitchell, of the "Bulldog" sledge, was exchanged for the invalid Hill, and the latter was left in the tent till our return, together with Cane, who was not yet strong enough to be of any use.

At 1 P.M. we parted from the sledges "Marco Polo" and "Victoria," and then helped the Western Parties on their inshore route, bidding them good-bye at half-past two.

After the changes already mentioned, the returning crews consisted of the following men :—John Thores, Ice Quartermaster, Captain of H.M. Sledge "Bulldog ; Wm. Malley, A.B. ; Thos. Chalkley, A.B., ; Alfred Hindle, A.B. ; James Hand, A.B. ; Elijah Rayner, Marine ; and Elias Hill, Marine.

Mr. George White, Engineer, officer in command of H.M. Sledge "Alexandra." David Deuchars, Ice Quartermaster, Captain of the Sledge ; Robert Joiner, Leading Stoker ; James Self, A.B. ; Thomas Smith, Marine ; James Cane, Armourer ; William Hunt, Ward-Room Cook ; and Arthur Norris, Carpenter's Crew.

Having turned over what we could safely spare to the Northern Party, we still retained eight days' provisions, and five days' fuel. In case of detention from wind, fog, or illness, we had three days' provisions at Depôt Point to fall back upon.

Mr. White's sledge had been required by the advancing detachment ; we therefore packed the "Alexandra's" tent and sledge gear on the "Bulldog" sledge. The total weights then amounted to 1,406 lbs., or 108 lbs. per working man. We left camp at 2.30 P.M. It was very misty, and I was anxious to sight "Hercules" Point, or retrace the more intricate part of our track before a change of weather could obliterate the road we had already made with pick and shovel, and no small expenditure of eye-sight. My brief experience in path-finding amongst hummocks in a fog had given me quite enough of it, and I knew that nothing else would so materially interfere with the dispatch enjoined in my instructions. If the two tents and stores had not made the sledge load inconveniently high, we would have carried Hill, not because the walking was at all likely to injure him, but in order to travel faster than he walked. After four hours' travelling, the site of our sixth camp was reached. The fog lifted and let us see our land-mark, Twin Peaks in one, bearing N. $\frac{3}{4}$ E. An hour after we started, Norris, of the "Alexandra" sledge, hurt his knee by putting his foot into a crack in the floe. The pain was sharp for a time, and I was obliged to place him on the sledge. Before reaching camp, however, he narrowly escaped further injury by the upsetting of the sledge while passing through a narrow, much inclined gap in some hummocks. We camped at 7 P.M. The temperature was $-7°$, and in the tent, when everyone was packed for the night, $+ 10°$. Distance travelled, 5 miles.

12th April.

Tenth journey. Called the cook at 5 A.M., again at 5.30, but had to get up and see him thoroughly awake at 6. The sun shone on the tent, and the temperature was

+ 10° inside, and −10° outside in the shade. Camp was struck at 8.55. Hill and Norris had been sent on in advance, and we had a brisk piece of travelling over good floe, and got comfortably warmed before we overtook them and reduced our pace. The floes were broader as we approached Hercules Point, and but narrow fringes of hummocks hedged them. I estimated one at 1½ mile across. There were many cracks in it, some of them as much as two feet in width. Their blue depths, festooned with feathery bridges of crystals, were only discovered when some one put his foot through the snow roof.

The crust on the snow covering the large floes had hardened a good deal, and gave us much better travelling than in our northward march. At noon our fifth outward camp was passed, and we opened a broad snowy valley, with fine groups of mountain peaks on its south, and the twin mountain range on its north. It was closed in the distance by a high snowy plateau, with peaks rising here and there, and looking as if they were floating, like the geological formations in Martin's "Plains of Heaven." At 12.30 we halted for an hour and ten minutes for lunch. Temperature, −15°, but calm. At 4 P.M. we passed Depôt Point, leaving the little depôt intact, depositing a notice and 30 rounds of our unfortunately idle ammunition. Hill now began to feel fatigued, and we camped at 6.30 P.M., under Symonds Island, in Black Cliffs Bay. Temperature on camping, − 23°. Distance marched, 15 miles.

13th April.

11th Journey. Called cook at 5.30 A.M. Temperature in tent, zero. In order to avoid the blue domed heavy floe crossed in the outward journey, I took Hill with me, and when the bags were rolled up at 8 o'clock, went in advance and picked out a road inshore towards the boat depôt. My instructions desired me to bring the smaller of the boats back to the ship. Captain Markham, however, had visited the site of the depôt and found it covered so deeply in snow that he relieved me from that duty. On reaching the place where we had been digging, I happened to find one place sounding so hollow that it seemed worth while trying to get the boat. We at once found the large boat two feet under the hard smooth surface, and knowing that the other should not be very far off, dug radiating trenches in all directions; but after five hours and a half of hard work failed to find it. During this time it was necessary to pitch the tent, as the temperature was − 26°, and the men who were not employed (we had but two shovels and two picks) felt the cold. Lunch was cooked and eaten inside the tents without interrupting the digging, and we finally proceeded at 3.30 P.M. A cold S.W. wind sprung up, and at 5.30 none of us were sorry to camp under the lee of a wall-like hummock off Snow House Point. Distance marched, six miles. We would have gone farther, but that I was anxious to spare Hill, who could not walk fast enough to keep warm in the wind. I give him a grain of quinine twice a day. He has improved greatly considering that he has no food but cocoa and biscuit. Pemmican disagrees with him; a less fat and spicy food would suit him better. Rum, in a case of congested liver and spleen is, of course, prohibited.

14th April.

12th Journey. Good Friday morning. Called cook at 5 A.M. Temp. in tent + 3°; Got under way at 8. Halted for lunch at 11 A.M., and walked to and fro in a cold S.W. wind for 45 minutes; temperature − 23°. Then got off again, and reached the ship at 2.30 P.M.; distance marched, 7 miles. E. L. MOSS.

H.M.S. "Alert," Winter Quarters,
23rd April, 1876.

Sir,

With H.M. Sledge "Bulldog," equipped for 10 days, and travelling as much as possible by night, you will convey to Cape Joseph Henry a depôt of provisions for the use of the crews of the "Challenger" and "Poppie."

The latter sledge is provisioned up to the 3rd May, after which day Lieutenant Giffard is dependent alone on the supplies which you are advancing; but only to the extent of a quantity sufficient to admit of his reaching the "Alert." The depôts are to be buried, and protected as much as your means will allow.

G. S. NARES, *Captain,*
Commanding Expedition.

To

Dr. E. L. Moss,
Surgeon R.N.

The crew of H.M. Sledge "Bulldog," placed under my command on 23rd April, 876, to deposit depôts for the Western Sledging Division at View Point, Cape Josepih Henry, consisted of the following men ;—

Ice Quartermaster John Thores, Captain of the Sledge ; Ice Quartermaster David Deuchars ; Leading Stoker Robert Joiner ; William Malley and James Self, A.B.'s ; Thomas Smith, Private Marine ; and James Cane, Armourer.

The weight of the loaded sledge was 1,448 lbs., or 207 lbs. each for seven men. This total was made up of Lieutenant Aldrich's depôt, weighing 261½ lbs., Lieutenant Giffard's, 435½, provisions for ten days, 210 lbs. The pemmican was reduced to ½ lb. allowance, as less than that quantity had been eaten during the former trip, and the provisions left at Depôt Point were available, if necessary. The bacon was increased from 4 to 6 oz. The advance of the season and the adoption of night travelling enabled me to dispense with several items, and reduce the constant sledge weights to 41 lbs. 10 oz. An extra coverlet was omitted, and waterproof was substituted for the heavier canvas floor cloth. The store bag was reduced from 10 to 6 lbs., and the medical stores to 12 oz. The latter reduction was effected by omitting the tourniquet, truss, and patent splint, because efficient and sometimes preferable substitutes could be constructed from materials on the sledge when the officer in charge is a surgeon. Medicines requiring bottles were discarded in favour of their dry equivalents. The fragile glass, often heavier than the drug it held, and subject to frozen cork or stopper, was thus disposed of, and a bulky box became unnecessary. Some gelatinized medicines which Professor Nordenskiöld had given me—specimens of those he had chosen for his own expedition—had already been found very useful. I took opium, morphia, and quinine in this form. Lead acetate, crystals, and gelatinized Calabar bean for snow blindness, some purgative pills and chalk powders, and a little benzoated lard, completed the list of medicines. The remaining stores were two flannel and three linen bandages, carbolized tow, cotton wadding, a sponge, and a catheter, together with a small pocket case, holding, besides the above medicines, a scalpel, forceps and scissors, and a little hempen ligature thread.

No change was made in the recognized clothing, except that several of the men took flannel as well as blanket feet wrappers, and omitted the spare jersey or drawers from their knapsacks. All carried their sealskin caps, but in calm weather wore in preference a light cap with peak and ear flaps, made by themselves out of drill, flannel, and green baize.

Night of 23rd, and 24th April.

Thus laden and equipped, we left the ship at 11.15 P.M., and ploughing through some deep snow in the embouchure of the north ravine, reached Mushroom Point at 1.15 A.M., and halted for lunch. Calm. Temperature −17°. Sledging thermometer No. 1524. While tea was getting ready, the sledge was lightened by carrying all the smaller gear across the isthmus. I had to relieve Cane from work, for he limped with pain in his right instep, caused, he said, by putting his foot on a point of ice. He ran grave risk of frostbite, for the temperature had fallen to −36°. At 3·15 A.M. the sledge was drawn across into the next bay, and we proceeded till 5·30. I then camped, and examined Cane's feet. They had escaped, and the instep, though tender, was not swollen. He coughed incessantly, principally, I think, because of the shag tobacco in vogue. Marching against the dazzling sun and snow had made most of our eyes tender, and goggles were worn in the tent by several till they lay down in their bags. The distance marched was estimated at 8 miles.

Night of 24th, and 25th April.

Second Journey. Called cook at 4 P.M. The tent temperature + 24°, without condensation, and very comfortable. Temperature in my bag + 30° on left, and 61° on right side. I had brought a small berceaunette blanket weighing 12 oz. to equalize this difference, and it has proved such a success that I would recommend it for both outside men, cook as well as officer, for cold weather work. Thores is tender in front of his ankles, and Deuchars behind, due, I think, in both cases to being more accustomed to wear boots than our men.

From near the camp in Dumbell Bay last autumn, I had seen that but a narrow neck of land separated Dumbell Harbour from the bay off whose mouth we are camped. It seemed to promise a good route to the westward across the harbour and along the lake for hunting or other parties going to Black Cliffs Bay.

The sledge proceeded at 6.15, and followed the old tracks towards Harley Spit. I went inshore down the bay to explore the new route. The mouth of the inlet was only 100 yards wide. 1,500 yards S.W. across smooth but old floe, brought me to the

neck of land, which was so deep in soft snow that I had to put on snow shoes to cros it. It was 500 yards wide. Then turning northward I passed over the site of our th ee days' camp; every trace of it was hidden in deep soft snow. A fox track crossed ne hill. He had dug out several dead lemmings but left them untouched. At 9 P.M. I rejoined the sledge off the mouth of the harbour. Passing Harley Spit we halted or lunch at 11 P.M., temperature −24°. The grounded floe bergs hedging the shelv g land beyond the Spit, have seen many summers, if one can judge by their rounded fo s and deeply channelled sides. Some of them have been named by the men, and " e corn stack" and "Thores' thumb" are old acquaintances. Pressure between the be s and the ice-foot has buckled the inside ice into arches, tunnels, and wall-like rid s. One of the latter, now standing perpendicularly, showed Aldrich's dog sledge tracks of last autumn. The travelling here was heavy. The snow was crusted by evaporat n from its depths condensing on its surface, and the sledge went through it like "a plo h with a cart load on it" As we neared the boat depôt, the United States Range appea d strangely distorted by mirage, and the floes between us and Depôt Point seem d depressed into a vast basin. Near the boats we turned off on to the floes, and scramb d over half a mile of blue slippery domes, projecting through a quagmire of half-crus d snow. A smooth floe then brought us to Simmons Island. All were tired, and camped at 4.30. Temperature − 27°. Distance marched, 7½ miles. While the t was being pitched I walked over the island, but saw no living thing except vermilion-coloured lichen on a black stone sticking up through the snow. Cane's heel was found to be frostbitten, but recovered easily.

Night of 25th, and 26th April.

Third Journey. Called cook at 5.30 P.M. Temperature in tent + 24°. A la grounded floe-berg close by our camp deserves special mention as a type of its cl Some enormous pressure had forced it and its brethren high on shore. It stood, a h rectangular mass, 40 feet high above the floe. Its lower 15 feet were of unstratified b ice, enclosing yellow patches of surface salt-water diatomaceæ between spaces of ice w their lines of air-cells differently inclined. The remaining 25 feet was banded with of the usual white and blue horizontal layers—white where the ice is spongy with cells; blue in the denser layers above and below. The height was too great to det "dust bands." Above all, and covered only by the surface snow, were sections in oli tinted ice of what had once been surface pools. We struck camp at 8.30 P. temperature −22°, and after three hours' march, halted for lunch. The march after much valued tea is always brisker, longer, and more cheery than before. We ha several times tried to lessen the chill interval before the snow-water boiled, by sendi the cook and his gear in advance, hauling the sledge past, and then walking back. insignificant fraction of time is saved, but it keeps the men moving and better employ than walking out labyrinthine patterns in the snow.

Passing through the hummocks of Depôt Point, and crossing one large floe, camped at 5 P.M. Temperature −24°, with a little westerly wind. Deuchars' left tend Achilles is tender and swollen; a firm bandage greatly relieved it. Distance marche 5½ miles.

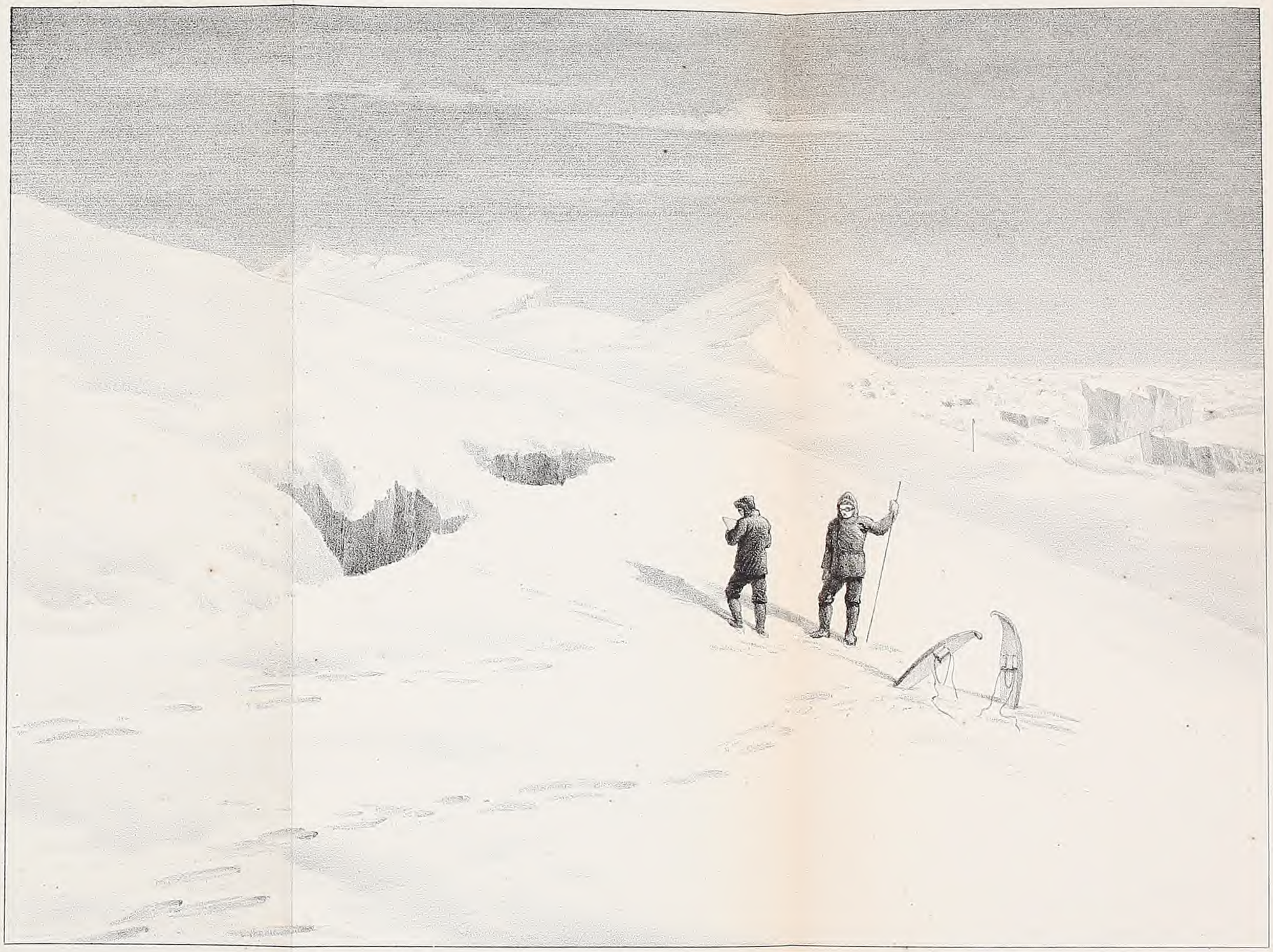
Night of 26th, and 27th April.

Fourth Journey. Called cook at 4.30. P.M. Temperature in tent + 30°. We left t ship with an unanimous prejudice against night-travelling. Everyone is converted no The frozen blanket wrappers and stockings hung out on camping are dry in the evenin I wish we could hang out our duffle trowsers also. The perspiration condenses a freezes in them; no brushing or beating will get it all out, and when we get warm our bags it thaws, and leaves us in soak till it freezes again. The hard-working capta of the sledge had his waistband frozen as hard as a hoop round a cask this morning, a had to cut himself free with the pemmican chopper. All the bristles are broken out of o tent brush, although they are genuine whalebone, not caoutchouc. Everthing made the latter substance has become brittle; for example, the teeth have broken out of comb, and Mr. White Cooper's goggles have broken into fragments as brittle as glass.

The men continue to wear the service goggles, some of them have replaced the gla with a piece of blue bunting, which answers very well. I use smoke-tinted spectacle they are more readily taken off to scratch the condensation off the inside of the glass, b they require much more care; Mr. White Cooper's goggles are hard to walk in, becau they prevent the feet being seen. Veils are useless.

Left camp at 7.15. Temperature −11°. The wet waterproof was kept spread ov the sledge till it dried, and was then rolled up on the spare tent pole as usual. Ne

26 AUG 1932



Dangerfield Lith 22 Bedford St Covent Garden

midnight, as we walked towards the sun, the snow crystals in our path sparkled violet and yellow like countless gems—red and green are absent, or nearly so. There was no parhelion, but many fleecy clouds over the sun showed the beautiful nacreous diffraction tints so common here. Halted 65 minutes for lunch at 11.10 P.M. Temperature —18°. In the after-midnight march it was very difficult to follow the old tracks. At 4.15 A.M. we camped in a hollow amongst hummocks of boulder ice. The first snow melted for tea was so salt that it had to be thrown away. The snow had been taken to leeward of masses of one or two year old boulder ice, and every blue surface exposed was covered with plates of efflorescence, like the wings of countless feather moths. An examination of similar crystalline efflorescence near the ship, showed that it held 2.27 times more salt than its mother ice. Distance marched to-night, 7½ miles.

Night of 27th, and 28th April.

Fifth Journey. Called cook at 4 P.M., temperature in tent + 36°, and left camp at 6.30; temperature — 4°. The old tracks soon became quite untraceable. We were 2½ miles from shore, on a broad floe of promising appearance, but full of hollows, levelled off by snow recently blown from land, as numerous willow leaves showed. The camp from which we had turned inland to the depôt in our former trip, was about two miles ahead to N. I avoided the angle, and took a straight course for the depôt. Lunched at 10.35. Temperature— 9°. The tent was pitched and banked up, but it was still miserably cold for the feet. While lunch was preparing everything except the depôt was removed from the sledge, and placed in the tent. At 11.45 P.M. we left the tent pitched, got through the shore hummocks without much trouble, and reached the spot selected for our depôt at 2 A.M. Tried to dig a pit, but the ground was frozen so hard that it had to be given up after an hour's work. There were some stones uncovered by snow on the brow above, and three sledge loads were carted down. While lowering one load the drag-rope cut on a stone, and the sledge and load slid down the steep snow bank, but fortunately stopped uninjured before it reached the sea ice. Leaving the men to complete the cairn of stones and flattened pemmican tins covering the depôt, and then to return to camp, I went northwards at 5 A.M. to see whether Aldrich had found the snow valley practicable. His track was easily followed. While rounding the steep snow incline east of View Hill, I came upon a large crevasse bridged over with snow, except in two places. The sledge tracks led over the bridge, within 15 yards of one hole, and then went down to the ice-foot. Half a mile further on the tracks went inshore northwards, then trended westward along a broad ravine, which, receiving a branch from the south, runs towards the sea between the second hill west of Observation Peak and the large hill whose base I had reached. The snow valley had evidently given Aldrich good travelling. At 7 P.M. the hills became covered in mist, and light snow fell. I therefore returned. There were some stony ridges bare of snow in the valley and on the flanks of View Point, and on these I picked up a number of fossil corals, polyzooa, and brachiopods of silurian type, belonging to the local rock.

A second inspection of the crevasse made me resolve to place some mark to warn returning crews, for wind or snow might re-bridge it, and if a sledge crew fell through the roof they could never get out again. Distance marched by the men—to the depôt 5 miles, back to camp 2 miles.

Night of 28th, and 29th April.

Sixth journey. Called cook at 5.30 P.M. Temp. in tent + 40°. Taking Malley with me to help to measure the crevasse, I left camp at 9 P.M., having instructed Thores to leave at 11, and follow the return track. The crevasse is 40 yards from the ice-foot. It makes a curve hollow towards the sea, and in a N.N.E. direction, thus cutting off a lense-shaped mass 40 yards wide and 200 long from the rather convex snow and ice incline of 18°. The roof has recently fallen in in two places, leaving overhanging lips 12 feet asunder. Its walls of green ice held irregular layers of clay, and were covered with icicle-like crystals from two to three feet long. An alpenstock tied to the measuring line reached 20 feet, but I could not touch the fallen roof, which was to be seen down below at little over that depth; on either side the fissure continued into darkness, descending as it went.

The accompanying sketch was made, and an 8-foot rocket staff, with a warning notice, and carrying a small flag, was secured 90 yards to the northward, in a place where it could not fail to be seen. A "Post-office" tin was secured on the Depôt Cairn. Aldrich and Giffard's dispatches were placed in it, with their letters, and a notice left for the latter officer saying that a sledge would revisit the depôt in 15 days. We overtook the sledge party at lunch at 2.15 A.M., temp. — 8°, and proceeded at 3.10. The

"castle floe" was soon afterwards crossed. It is seven feet above the average level o the surrounding floes, and its surface of about an acre is walled in by high hummocks perpendicular on the outside, hence its name. All this journey, but one object other tha snow was in sight. This was a black boulder on top of "Depôt Point." Th attraction it had for our eyes was positively painful. We camped at 8 A.M., close nortl of the "Depôt Point" hummocks. Temperature — 5°. Distance marched, 11 miles. N one now suffers from cramp, and except Thores, Deuchars, and Joiner, who are tende about the heels and ankles, all are quite well. Self and Malley are not inconvenience by their shortened toes.

Night of 29th, and 30th April.

Seventh journey. Called cook at 7 P.M. Temperature in tent +35°. Started a 10 P.M. Temperature — 8°. A memorandum was left at the depôt, and the hill behin it was again fruitlessly searched for game. A solitary hare was shot here in our first northward trip, but no other fresh food has been obtainable. Halted for lunch a 1.15 A.M., close to Simmons Island. Temperature — 2°. A light wind and clammy perspiration made it miserably cold. There was a cave in one of the grounded floes nea us, but its temperature was 6° lower than the air. We pitched the tent. Tea did no boil for an hour and a quarter, though, as usual, we used a little saved bacon dripping i addition to the allowance of stearine. Got away again at 2.45. Passed the mouth o "Dumbell Bay" at 6.20, and camped. Temp. + 5°, snowing, with light N.W. wind. Distance marched, 12 miles.

30th April.

Eighth journey. Called cook at 2.15 P.M. Temp. of tent + 26°. Under way at 4.30. Temp. + 9°, with W. wind. Deep slush in tide cracks has formed off the east extreme of "Snow House Point." Halted for lunch for one hour at 6.35 P.M., on the east side of "Mushroom Point," in a cold, freshening wind, temp. + 9°, and reached the ship at midnight. Distance marched, 8 miles.

During this trip, observations, unavoidably restricted to myself, were made on respiration, pulse, and sublingual temperature; the main result being that temperature was ·42, and pulse 18 lower in the evening before leaving the sleeping bag, than in the morning after settling down for the day's rest.

POSTSCRIPT

The tender and swollen ankles and legs mentioned in this journey were subsequently seen to be the joint effects of sledge travelling and scurvy, but were not at the time regarded as connected with that disease, because I had no personal experience of it, and the records of former expeditions detail such disorders independently of scurvy.

EDWARD L. MOSS.

REPORT OF CONDITION OF NORTHERN SLEDGE PARTY.

1st July, 1876.

At 6 P.M. on 8th June, Parr reached the ship with the news that Captain Markham's detachment were disabled by scurvy and in need of assistance, off View Point.

May and I, with Self as dog driver, left the ship at 11.30 P.M., with a team of six dogs, to carry medical stores to the distressed party as rapidly as possible, and cheer them with the knowledge that Captain Nares, with two relief sledges, was following us closely.

We reached them at 10.30 P.M. 9th, on the commencement of the large floes south of View Point.

Rawlings, Simpson, Ferbrache, and Pearson, staggered along in advance. Captain Markham, Radmore, Joliffe, Maskell, Harley, and Lawrence, worked in the drag-belts, pulling Hawkins, Francombe, Shirley, and Pearce. Porter had died the day before. It was difficult to recognize any of the men, their faces were so swollen and peeled, and their voices so changed.

They had just left their camp and commenced their journey. On examining into their medical condition, I was satisfied that a continuance of the march would not endanger those on the sledges, and altogether, apart from the precarious condition of the

loes at this late season, I did not think it necessary or advisable to stop all progress by camping till the arrival of the relief sledges. The detachment had obtained lime juice at View Point Depôt, and the stock we brought enabled all to go on double allowance, given to the worst cases in small quantities at suitable intervals. Egg-flip and port wine were also freely given. When they camped I visited each tent, and a more thorough examination was made than was possible while the men were on the sledges. The following is a summary of their medical state, divested of technicalities. Except Captain Markham, Radmore, and Joliffe, all had swollen legs, hard to the touch, and often very tender. Where the red as well as the watery parts of the blood had escaped from the vessels, red and purple patches, like recent bruises, mottled the skin of the swollen parts, or showed in minute specks at the bases of hairs. Swollen muscles in the calf and ham kept their knees bent and stiff. One had a discoloured arm. None had strictly healthy gums, but in four only were they really bad. In these, dark purple swollen masses projected round the loose teeth, and the mouth ran with fœtid saliva and blood. All but Pearce had fair appetites and would be able to digest fresh food if we had it for them. Three hares had been obtained with great difficulty and deposited in the depôt for them. They had been eaten in two meals and greatly relished. No diarrhœa followed, the opposite condition was more common. One man had dropsy of the testicle, which had been much worse a few days before. The foregoing symptoms, however, were not such as directly endanger life. The condition of lungs, heart, and brain required more attention.

Everyone had short breath on exertion, but especially Hawkins, Ferbrache, Simpson, and Pearson. The first two had dropsy of the chest, but not to such an extent as to prevent them lying down. In both cases the skin over the ribs of the affected side was puffy. Their respirations, when at rest, varied between 30 and 40 a minute. This state of lungs was accompanied by an irregular feeble pulse of 108 to 120 a minute The slightest exertion produced prolonged difficulty of breathing, and faintness. Instructions were given that the least movement was not to be attempted without help, and their comrades, though ill themselves, were as attentive, and much more solicitous, than well-trained nurses.

Blistering fluid was used with all four of the above cases, and the liquid part of their diet reduced to what was necessary to wash down their food. At supper preserved oysters were much relished; they required neither cooking nor chewing. A stew of preserved ox cheek, flavoured with 2 lbs. of our small supply of English mutton, was eaten by all, and a glass of port wine was issued in lieu of grog, which, however, had long been discontinued by those who did not pull the sledges.

After a short rest May returned to carry back the news of their state and position. 10th. Already there is a great improvement in the men, despondency is gone, and they laugh and joke about their lame legs and loose teeth. Our remaining mutton (2 lbs.) was given for breakfast, and a pot of black currant jam served out. It was found to have a good effect on the gums. Immediately before placing the sick on the sledges their bowels were attended to in the tents. This was done without exposure, and—in order to avoid fainting—without raising them from a lying posture, by turning back the under robes, and digging a hole in the snow. On these occasions faintness, if not actual fainting, is unavoidable. I made it a rule to give a little egg-flip or port wine beforehand. A urinal was most useful both in the tent and on the sledge.

We travelled southwards very quietly, the temperature being 31°. Before lunch time May and Egerton came up with the dog sledge, bringing four brent geese, and soon afterwards the remaining relief sledges arrived, and camped with the northern party. A camp for the sick had been formed at Black Cliffs, and a shooting party left to prepare for them.

Pearson and Rawlings, the two men least likely to require medical assistance, were at once sent on to the camp with May. The dogs carried them easily and swiftly, and spared them a fatiguing march. When we camped the temperature was 29°, but Simpson had the two inner toes of his right foot frostbitten. They easily recovered by holding them in the hand for a few minutes. The northern detachment made a good supper of the four geese, with four pounds of preserved fowl. Hawkins, though very low and feeble, took half a pannikin of the stew. A little quinine had improved Pearce's appetite. Blistering fluid was used again with Hawkins, the condition of his chest is much improved, and he breathes more readily.

Soon after beginning the next march May arrived again, and took Ferbrache and Simpson on to camp. Shirley suffered from a little diarrhœa during the journey, but was relieved by chalk and opium. A "slipper pan," thoughtfully sent out by the Fleet Surgeon, was most serviceable. The three sledges carrying our four worst cases and the tents reached Black Cliffs camp at 3 P.M. in a single march. Captain Markham's party lunched on the way, and came in at 4 P.M.

In order to counteract the expected effect of goose hash and other fresh food, I gav Hawkins a chalk powder and a square of gelatinized opium (·4 gr.). Champagne wa given instead of port wine, but was not liked as well. Hare hash was served out fc supper. Hawkins and Shirley had theirs cold, as less likely to act on the bowels. Fc the same reason arrowroot boiled with milk was substituted for their morning coco Elias Hill, Marine, acted as cook for the sick, and was most painstaking and patien The sick slept well, though it was very warm in their tent. They and all the norther party had a fresh meat breakfast of hare and geese.

We were now within an easy dog sledge journey from the ship. It was therefor arranged that two of the invalids should be sent on in order to lighten the remainin sledges. I selected Shirley and Pearson as the most suitable cases, and May left wit them at once, carrying a note from me to the Fleet Surgeon, Captain Markham's part still pluckily pulled. Two men were placed on an eight-man sledge, and the twelve-ma sledge was comfortably fitted up to carry the remaining four by partitioning it across th middle with battens secured to the uprights, and broad beds made at either end o robes with knapsacks at the head. Two men were placed at each end, heads amid ships. Their bent and stiffened knees rested on rolled-up sleeping bags, and they wer well covered with tent robes. Four officers and two men pulled this sledge. Soon afte starting Sub-Lieutenant Egerton became snow-blind. I placed a compress on his eyes and he pulled between the drag-ropes.

We lunched in three hours, the sick getting soft bread, with apple jelly, and mil in their tea. Hawkins had an egg-flip and some calves-foot jelly. While roundin Harley Spit, two hours afterwards, the jolting of the sledge became uncomfortable t Hawkins ; he grew very faint, and breathed with difficulty. I gave him champagne an brandy freely. Diarrhœa made it necessary to lift him from the sledge, but he was go back again without syncope, a grain of gelatinized opium was administered, and leavin the sledge to follow me quietly, I overtook the leading sledge, and recommende camping, as the rest would enable Hawkins to proceed without injury. Blistering flui was used over his bowels, so as to cause slight redness, and a compress of cotton woo and flannel applied. He had cold arrowroot well boiled in milk with port wine fo supper. The others supped off preserved meat, with Edwards' soup, soft bread, appl jelly, and tea with milk. All slept well except Ferbrâche, whose kidneys appear t have been affected by the lime juice he had taken rather freely. Next day an eas march brought us to the ship.

I have the honor to be,
Sir,
Your obedient servant,
EDWARD L. MOSS.

Captain G. S. Nares.

VESTERN SLEDGE PARTY.—ORDERS TO LIEUTENANT PELHAM ALDRICH, 3RD APRIL. REPORT OF, 15TH JULY. REMARKS ON CLOTHING, EQUIPMENT, &c. SLEDGE JOURNAL, 3RD APRIL TO 26TH JUNE. LIEUTENANT G. A. GIFFARD. ORDERS TO, 3RD APRIL. SUMMARY OF PROCEEDINGS AND SLEDGE JOURNAL, 3RD APRIL TO 3RD MAY. SUMMARY OF PROCEEDINGS AND SLEDGE JOURNAL, 7TH TO 24TH MAY.

H.M.S. "Alert," Winter Quarters,
3rd April, 1876.

IEMO.

Taking under your command the crews of the two sledges named in the margin, ılly equipped and provisioned, you will proceed on a journey of exploration along the ɔast line of Grant Land towards the north and west. "Challenger." "Poppie."

2. The provisions in depôt and those carried by the sledges are calculated to afford ıpport for a journey of seventy-six days for one sledge under your personal command. ieutenant G. A. Giffard, in command of your supporting sledge, has been directed to lace himself under your orders. Having accompanied you as far as his provisions will llow, he is to return with precise instructions from you regarding the placing of a depôt f provisions in advance of Cape Parry for the support of your party Another depôt of rovisions for your use on the return journey will be placed on this side of Cape Parry; nd in the event of your finding heavy ice which might force you to cross the land south f the cape when returning, you should also mark a position for another small depôt to e placed ready for your use. The captain of the second sledge, as well as Lieutenant iffard, is to be informed of the intended locality of these depôts, which should be clearly efined and marked.

3. During your advance journey, you are to endeavour to keep on the northern hores. Your best guide for doing so will be to follow the line of heavy stranded floeergs which border the coast in whatever direction they may lead you, even if that should rove to be towards the south-westward. Should you experience smoother or lighter ice han that in our neighbourhood, you may reasonably conclude that some protecting land xists to the northward of you. If visible, it will then be for you to decide, according o its bearing, the quantity of provisions you have remaining, and the state of the ice, vhether you cross the ice towards it or leave it to be explored on a future occasion.

4. Commander Markham, with two boats, equipped for an absence of about 70 days, s endeavouring to force a passage to the northward over the ice from the neighbourhood f Cape Parry. A copy of his instructions is supplied for your information, and to ensure *See page* 118. our two lines of exploration not interfering with each other. Your respective sledges re to journey together as long as possible, in order that you may be enabled to avail ourself of Dr. Moss's services in the event of sickness; but any compulsory detention of ither party is not to delay the advance of the other.

5. Should you meet with a travelling party from the "Discovery," you are to give he officer in command such orders as you consider will best ensure the exploration of the argest extent of land; but you are not, by using his provisions, to extend your own ourney beyond a limit of 80 days' absence from the "Alert."

6. Should there be any deep inlets to be explored eastward of Lieutenant Giffard's urthest, his sledge, after carrying forward the depôt of provisions for your return, can e employed on that service under your orders.

7. At each of the prominent headlands on your route, and as frequently as possible t your daily encampments, you are to leave a brief notice of the direction in which you are xploring, and all such information as would assist a party from the "Discovery" xamining the land in the neighbourhood left unvisited by you. At your extreme osition you are to erect a conspicuous cairn, and place in it a brief notice of the irections taken by our exploring parties, the position of the winter quarters of the Expedition, and to the best of your power fill in and deposit the skeleton chart with which you are supplied.

8. With regard to the remarks to be noted in your daily travelling journal, you are o consider my general order of the 21st July, 1875, as being still in force. *See page* 39. Information concerning the date when the ice in the offing is first in motion is specially required.

9. Having the utmost confidence in your character for perseverance, combined with good judgment and the skilful management of your resources, I look forward with certainty to the satisfactory performance of the duties committed to your charge.

G. S. NARES,
Captain, Commanding Expedition.

To Lieutenant Pelham Aldrich.

H.M.S. "Alert," at Floeberg Beach.

Sir, 15*th July*, 1876.

I have the honour to forward, for your information, a short summary of the proceedings of H.M. Sledge "Challenger" under my command, between April 3rd and June 26th.

Leave ship. Arrive at Depôt Point. Arrive at View Point.

Leaving the ship in company with the "Poppie," as my support, and the sledges forming the Northern Division under Commander Markham, we reached the depôt on Depôt Point on the 7th April, received 56 lbs. of pemmican, and proceeded to View Point Depôt, from which I completed with pemmican and bacon, according to previous arrangements, on April 10th.

Decide on going overland.

The 11th was foggy and very thick, and we found great difficulty in picking our way through hummocks which got worse as we proceeded.

Part company with Northern Division.

This short experience made me fear that I might be detained days and days in rounding Cape Joseph Henry, so I decided to try the route overland, and parted company with the Northern Division after lunch, hearty wishes for success being freely exchanged.

Elias Hill (Gunner R.M.A.), returns ill.

Advantage was taken of Dr. Moss' return to the ship to send back Elias Hill, who had been ill for some days, partly brought on I believe by his overworking himself at first starting. Sergeant-Major Wood had also shown signs of weakness, but two or three days clear of the drag-belt enabled him to come on, which he was most eager and anxious to do.

Receive David Mitchell, A.B.

I received David Mitchell, A.B., in lieu of Hill.

Cross overland and reach a Bay.

On April 12th I began the overland journey, "Poppie" in company, steering to the westward until clear of the three high hills inside Joseph Henry Peak, and then hauling up to the northward. until we reached James Ross Bay on Sunday, April 16th.

The travelling.

The travelling was across heavy sastrugi as a rule, which, in addition to uphill, rendered double manning necessary; but only on one occasion had we to porterage, and that for a very short distance. The snow in the bay proved deep and soft, and left no choice but double manning the sledges.

Cross the Parry Peninsula.

On April 18th, having coasted along the west coast of James Ross Bay (called Parry Peninsula), I found a route across it, about 3½ miles, and which offered no difficulty beyond double manning, from which it appeared we were never to be relieved.

Steer for Cape Colan.

On the 19th Lieutenant Giffard deposited a depôt for his return, on the north point of a small harbour (Sail Harbour), and we then shaped course for a cape (Cape Colan), N.E.½ N. by compass.

Clements Markham Inlet.

The weather was exceedingly thick and foggy, but during a partial clear, we discovered an inlet or very deep bay (Clements Markham Inlet), running in a W.S.W. direction (true), the entrance being 4 or 5 miles S.W. of Cape Colan.

Reach Cape Colan. Cairn.

Off Cape Bacon extends a low spit of shingle and heavy pieces of limestone, for a good mile to the northward, and on this we built a cairn, as the position selected for my return eight-day depôt. We reached Cape Colan on the 22nd, early.

We had now a straight course before us to Cape Aldrich, but the snow rendered the travelling so bad, we were still obliged to go over 3 miles to do one to the good.

Lieut. Giffard parts company.

On the evening of the 25th H.M. Sledge "Poppie" parted company on return to the ship, having rendered us excellent service during our journey together.

Forty-four days' provisions.

Even had we been sufficiently beyond Cape Colan to leave another depôt, the land offered no chance of doing so. I was compelled in consequence to go on with forty-four days' provisions in my sledge. At one time I half thought of leaving some on the floe, but on consideration I thought I should be able to do more by establishing a depôt at Cape Aldrich, and taking a fresh departure from there. I was the more satisfied of this by feeling that with anything over thirty days in the sledge, I should be obliged to adopt advancing by half-loads. Five days of very slow and tedious work followed until on April 30th we were thankful to get along with a single load and heavy labour. There were now thirty-nine days' provisions in the sledge.

Half loads.

Whole load.

First appearance of bad legs.

After the march, Sergeant Wood showed me an ugly-looking red patch on his ankle, which rapidly spread to his thigh by the following day. This was nearly the first complaint if I except Joseph Good, who had been more or less suffering from diarrhœa since leaving the ship.

Deposit depôt.

On May 1st, rounded Cape Aldrich, deposited a depôt of sixty-four rations (which left me with enough provisions to proceed till May 16th (forty-three days out) and sufficient in depôt to enable me to explore Clements Markham Inlet on my return, should since I find it remained undone.

Reach Cape "Columbia."

Off Cape Aldrich a considerable amount of low undulating shingle, covered nearly all over with deep snow, extends in a northerly direction two and a-half to three miles. This does not meet the line of hummocks which takes leave of the shore about two miles

west of Cape Joseph Henry, and runs in a north-west direction, leaving the apparently level floe covered in deep snow, over which we had been travelling.

A very good meridian altitude at noon gave our Latitude as 83° 6′ N., Cape Columbia bearing N. 21° 30′ E., two and a-half to three miles, and Cape Aldrich N. 239° 50′ E., two and a-half miles. The low land to the northward extends to about 83° 8′ 30″ N. Latitude of Cape Columbia.

Camped close under Cape Columbia on the evening of the 1st May, having observed a Cape twenty miles distant in transit N. 15° E. (comp.), and an island N. 16° E., five or ten miles further. I had made arrangements in camping to devote the whole of the 2nd May to ascending North Cooper Key Peak, which intention was abandoned on account of very dense fog. The fog lasted with scarcely any break for some five days, compensated for in some measure by the great improvement in the travelling. By noon of the 4th we had accomplished twenty miles, and found ourselves abreast a cape which I judged to be that I had seen from Cape Columbia. Cape Albert Edward. "Ward Hunt" Island. Reach Cape Albert Edward.

A peculiar state of the fog and atmosphere in general led me to believe we had reached a point where the land trended southwards, and we altered course to the S.W. for the only distant land we could see (some twelve miles off). We thus made our entrance into Disraeli Bay, from which we were glad to try and escape, after a forenoon's excessively bad travelling, on May 5th, when the fog lifted and we sighted a cape fifteen or twenty miles distant (Cape Alexandra), about W. by S. (true). Disraeli Bay.

Between Ward Hunt Island and the mainland, I observed a fox track, the first track (except lemming) since rounding Cape Columbia. Travelling good, over deep but hard snow, with six to eight inches soft on top, and occasional soft deep patches. Fox track.

On May 7th, James Doidge had a swollen knee, no discolouration; and the Sergeant's legs, though puffy and swollen, much more nearly approached their natural colour.

Turpentine liniment at this time was in great request, and used by nearly all hands, who were all more or less afflicted, a circumstance which, however, gave us no cause for anxiety, swollen and stiff limbs being expected as part of the sledging programme! Stiff and swollen legs.

On May 8th, arrived off Cape Alexandra, and deposited a 40 ration depôt. While it was being secured, I obtained a good view, from a hill about 400 feet high, of the ice outside the line of hummocks, distant about six miles. The floes were very small, and separated by fringes of hummocks similarly to those round "Joseph Henry," but the inside hummocks did not appear so large. The ice to the northward appeared no easier or better adapted for travelling over than the route taken by the Northern party. Deposit Alexandra depôt. State of the ice.

The brow on which the depôt was secured was bare of snow, and consisted of small shingle, and a large quantity of beautiful soil, which was, however, of course frozen hard, except in few places. Last year's saxifrage and poppy, with some patches of fresh green moss, showed that at a later date this northern coast-line might show some signs of life and vegetation, which were now certainly wanting. Vegetation.

After leaving Cape Alexandra, we crossed low land shelving from the hills and ravines to the northward, going to a height of 150 to 200 feet up a gentle slope, running parallel to the coast in a W. by S. direction, and terminating, after ten to twelve miles, in a steep descent, down which it was necessary to back the sledge, the men sitting down, holding on to the drag-ropes. Three or four narrow ridges, between 50 and 100 feet high, were then crossed, and we reached the level floe of another bay (McClintock Bay). A meridian altitude gave the latitude of the east cape of this bay (Cape Discovery) as 83° N. Cape Richards, at the western extremity, bore about W. by S., twelve miles.

The travelling across was very good, except in places, where we plunged through the same deep and soft snow. Travelling.

Off Cape Richards, which we reached at luncheon, May 11th, was low land like that we had already come over, which ran parallel to the coast about W.S.W., three or four miles, till it reached Cape Fanshawe Martin.

The line of hummocks had, however, been coming in, and after luncheon we crossed a crack, and were once again on a regular blue-topped floe, with a few heavy hummocks close round about, and a good many more a little farther out. An old floe.

Skirted round this low land on the old floe, and followed it to Cape Fanshawe Martin, distinguishable by a perpendicular wall of ice which lay in a dip between the low land and the steeper ascent to the Cape. Reached Cape Fanshawe Martin on May 12th, and crossed a spit of either low land or ice. Weather very thick the past few days, with head winds. Camped on 12th about four miles beyond Cape Fanshawe Martin, having opened out another Cape (Bicknor), S.W. by W., seven miles, with low land off it, similar to that off Cape Richards. On reaching this, which we did at luncheon, May 13th, we crossed another bay, about five miles deep, and then travelled over the low land which extended icewards. Cape Fanshawe Martin.

Hummocks and heavy floes.

The hummocks and heavy floes had again cleared the coast line, and appeared to run in a W.S.W. direction, and nearly two points different from that of the land. As we reached the top of the low land off Cape Bicknor, we sighted an extreme which I imagined about 25 miles distant.

On May 14th, a mer. alt. gave Latitude 82° 42′ N., and on the 17th, 82° 27′ 33″ N., we having been steering meanwhile about S.W., across a large double bay, the first bight of which is Milne Bay, and the second, Yelverton Bay.

On May 18th, leaving the tent pitched, I continued on with a light sledge, in the hope of finding some place on which to build a cairn, and also of seeing some distance along the coast; but in this I was disappointed, my former object being frustrated by the absence of any spot not covered with deep snow, and the low and shelving nature of the land for a considerable distance.

Any extended view along the coast line, beyond the position we had attained, was prevented by a gradual trend to the southward, with no cape or distinct point which was near enough to reach.

From our extreme, however, I had a very good view; there was not the slightest trace of land anywhere to the northward of where we had been travelling. The line of hummocks was about five miles distant from the land, and appeared to follow the bend of the coast to the southward.

Reach my turning point.

As the atmosphere was perfectly clear, had land of even moderate height been within 60 or 70 miles, we must have seen it; we were about 150 feet above the ice level, on a ridge which extended from the coast line iceward, two to two and a-half miles. On digging down we came to solid ice, at a depth of four and a-half feet, a circumstance I was not surprised at, as it had occurred before whenever I sounded, and the only reason I have for supposing all these low spits are land, is the fact of having come so suddenly on the shingle at the steep descent by Cape Discovery.

The Latitude of my farthest camp is about 82° 21′ N., Longitude 84° 56′ W., and as nearly as I can at present estimate, the distance made good outward is about 235 miles, that travelled over, 385. The difference being caused by double manning and advancing by half loads.

My homeward was the same as my outward track, but an alteration in the route between James Ross Bay and View Point somewhat reduced the distance, which was 220 made good and about 250 travelled.

The total distance travelled is 635 miles, with an average of about 7½ miles a day.

Remarks.

The "Cooper Key Peaks" I estimate about 1,800 feet high, and beyond them I saw but few if any hills worthy of mention. The coast for the most part slopes down from hills of moderate height, 1,000 to 1,300 feet, covered in deep snow, and intersected by numerous ravines.

Coast line.

Almost invariably a low shelving foot of land extended off them for a couple of miles to the northward, the rise being gradual on the eastern side, and much steeper on the western.

Ice pressure.

The pressure of the ice towards the shore is, I think, evidently from the northward and westward.

Bays.

Between these cushions as it were of low land, the coast is broken up into a succession of bays varying in depth and extent, with steep cliffs of a gable shape round them, and ravines leading to hills further inland between.

The cliffs are always similar on both sides of the bays, the slope of the land being generally the same on one side of a bay as on the other.

At the foot of the cliffs small ridges of shingle and broken débris from the cliff itself are generally found, and between it and the cliff a sheet of hard and slippery ice 100 to 150 feet in breadth.

My homeward journey closed all openings except Clements Markham Inlet, and the northern coast line is therefore continuous as far as I could ascertain.

Drift wood, &c.

Although perfectly aware of the importance of securing drift wood and other specimens, the nature of the travelling did not admit of much search, the entire coast being covered in snow, except portions of the faces of steep cliffs and occasional patches of shingle and débris. The latter I searched as closely as opportunity offered.

Plants and vegetation.

For a similar reason I can speak with no certainty of the plants and vegetation, although, from what I saw at my depôt off Cape Alexandra, it would prove in all probability to be much of the same description as that in the neighbourhood of the ship.

Birds and animals.

A solitary snow-bunting appeared on Sunday, May 14th, the first animal or bird we had seen (except one lemming) since leaving the land by View Point.

Tracks of animals were few and far between. In Disraeli Bay I found two hare tracks on Ward Hunt Island, and a fox track between it and the mainland.

The only sign of ptarmigan was a trace in a bare patch of shingle under Cape Bicknor, about lat. 82° 49′ N., long. 82° 10′ W., but not this year's. Ptarmigan.

A hare had also visited my depôt off Cape Alexandra, and there were traces of them and fox round my depôt at Cape Aldrich.

The health of the men was very good, with minor exceptions, until April 30th, when the Sergeant's leg became bad. Three days afterwards James Doidge was similarly attacked, and then each followed the other in succession, with the exceptions of Ayles and Mitchell. Health of the men.

This very seriously affected our outward journey, at a time when, had my crew been capable of stretching their legs, the travelling was all in our favour. Nothing could exceed their evident anxiety to do their utmost, and their constant lamentations at not doing what they had read of others doing before them were genuine, if unavailing. The feeling was rendered none the less bitter, that everyone thought the swollen and discoloured legs were only a part of the regular sledging programme.

Our return journey, however, was not so rapid as we had all looked for, and the legs became rapidly worse. Shortness of breath was also complained of, and gums became tender and sore. I then, for the first time, believed it was "scurvy," a suspicion which the men also quickly arrived at, although we never absolutely allowed it, and very studiously avoided the use of the term.

On June 3rd I was compelled to fall out the Sergeant-Major and Stubbs from the drag ropes, a course I should undoubtedly have adopted before, had I not dreaded the effect the actual fact might have on the others.

The travelling was also so bad, that notwithstanding we had no provisions worth naming on the sledge, we were obliged to advance by half loads for two or three days.

On June 4th, Henry Mann (shipwright) fell out from the drag ropes, while Good and Doidge were both very short of wind, and able to do comparatively nothing.

With the crew in this state it became impossible to put anyone on the sledge, as there were certainly three, and possibly five, candidates. I was compelled, therefore, to hurry the unfortunate men along anyhow, unable to diminish the pain they were suffering. Their patience and ready obedience were admirable, but, as was to be expected, they were wretchedly low spirited.

On June 5th we reached Cape Columbia, and the following day my depôt at Cape Aldrich, when we came on full allowance of biscuit for the first time since May 18th, having been on half allowance from that date till June 3rd, and one-third allowance afterwards till the depôt was reached. Reach Cape Columbia. Reach depôt.

From now, however, I felt easy on the score of provisions, and I hoped the extra food would improve matters, but unfortunately the sore gums prevented a good deal of biscuit being eaten, and the pemmican was decidedly not cared about.

On June 8th, Stubbs came to me with swollen testicles, or what I took for it. I am now persuaded it was "hydrocele," after a conversation with people who know better than I do. This was brought on, I suppose, from struggling through the snow with legs which he could not bend. "Hydrocele."

On June 9th, Ayles and I became permanent leading men on the drag ropes, while the Sergeant, and Mann, fell out for a full due—Stubbs being of course excused also.

On June 11th, Mann added "hydrocele" to his other ills. I made warm water for him and Stubbs twice a day, with which they steeped—and I had the satisfaction of seeing everything all right in that direction after seven days.

On the 12th reached my depôt off Cape Colan, and were much rejoiced to find the lime juice and extra bacon. Reach Cape Colan depôt.

From this date till reaching the ship, we had as much food as we could eat, though the appetites were painfully small.

I had intended devoting June 13th to a walk up Clements Markham Inlet with Ayles, and perhaps remaining away all night, leaving the remainder of the crew for a day's rest; but it came on very thick and a snowstorm, so that idea had to be given up, perhaps fortunately, as had they been once allowed to stop I might have found difficulty in getting them to move again.

Crossed the Parry Peninsula June 15th-16th, the travelling being very soft and bad, and towards the end of the march across James Ross Bay on the 16th, both Doidge and Good were in a half fainting state and had to be supported from falling. Cross Parry Peninsula.

The travelling overland behind Observation Range was fortunately very good and hard, the sledge runners scarcely leaving any impression.

On June 18th, Doidge fainted at the drag ropes, fell him out to walk on with the rest of the sick; Good struggled bravely, but did nothing.

All the men nearly were now only fit to be dragged on the sledge, but the strength was so reduced on the drag ropes, that I fell *every one* into them again, endeavouring to force them to feel how important I felt the necessity of reaching View Point; from which I intended sending Ayles for assistance to the ship, a journey he had expressed his readiness to undertake when I questioned him on the subject.

Sergeant-Major goes on sledge.

On June 19th, found excellent travelling down the ravine to View Point, but was obliged to put the Sergeant on the sledge—this being really the first time we had such a thing happen.

Finding the route across View Point as likely to produce much trouble and probable accident, I took to the hummocks, and an hour or two afterwards we were rejoiced at a shout from Malley up the hill. Very little time sufficed to make us aware that assistance was at hand, which was the more welcome being entirely unexpected; we having all along hoped that the Northern Division might have escaped, and that consequently no anxiety would be felt at our non-appearance till the 21st.

Meet Lieut. May and party.

Lieutenant May with his strong and willing party soon showed us what might be done with a light sledge, even among very nasty hummocks, and having got rid of all gear not actually necessary for our wants, we reached Depôt Point on June 22nd, and were afterwards met by you and several officers and men on the 26th, on which date we arrived on board.

Reach Depôt Point.

After falling in with Lieutenant May, none of my crew were able to drag except Ayles, and even he suffered very much from the increased exertion necessary to keep up with the increased pace. The remainder were brought in by the dog-sledge two at a time, doing their best by hobbling to shorten the dogs' labour. The Sergeant, however, remained permanently on my sledge.

Mitchell walked nearly the whole distance and tottered alongside on the drag-ropes, a request to the effect having been made me a few days before.

Adam Ayles pulled alongside. What all the sick must have suffered during their compulsory marching can only be fully realised by themselves.

Snow blindness has scarcely been felt except by myself, and that not very much.

In other respects my own health, thank God, was excellent, my only sign of weakness being a slight pain as of a strain in the right ankle during the last week, of which nothing came.

I have dwelt at some length on the health of the crew, as it has had a great deal to do with the length of the journey and its results.

As I did not find a place at my extreme suitable for building a cairn, I built one on Cape Fanshawe Martin, 9½ feet high, and in a position which anyone would notice who may travel along the coast. In it I placed a record and a chart, copies of which are forwarded with this for your information.

It may perhaps appear presumptuous on my part to enter here the deep gratitude we felt to you for your care and thought of us in sending the needful and well-timed assistance to us. The anxiety to myself during Ayles' intended journey, and the increased depression among the crew which was sure to follow the inaction at View Point were thus prevented, and it was with feelings difficult to be expressed that the sick men saw their shipmates.

I have the honour to remain, Sir,
Your obedient Servant,
PELHAM ALDRICH.

Captain G. S. Nares, F.R.S., &c.,
H.M.S. "Alert."

Cape Columbia, the highest northern point reached, is in
Latitude, 83° 7′ N.
Longitude, 70° 30′ W.

Beyond the coast line extends for about 80 miles on or about the 83rd Parallel, then gradually trends to the southward.

Farthest Camp—Latitude, 82° 21′ N.
Longitude, 84° 56′ W.
Extreme reached—Latitude, 82° 16′ N.
Longitude, 85° 53′ W.
Extreme land seen—Latitude, 82° 10′ N.
Longitude, 86° 30′ W.

Malby & Sons, Lith.

Sergeant-M
goes on sle

Meet Lieut
and party.

Reach Dep
Point.

ir,

In forwarding the Journal of Proceedings of H.M. Sledge "Challenger," I have very reat pleasure in bringing to your notice the untiring efforts and exertions of Lieut. V. H. May, Jas. Self (A.B.), Wm. Malley (A.B.), and James Thornback (A.B.)

From the day they arrived to assist us, our troubles were at an end, for they, one nd all, turned their hands to everything to assist the sick and lighten their work.

I have had occasion, several times during my journey, to mention in terms of ighest praise the conduct of my crew individually and collectively, but the excellent vork done by Joseph Good (acting Chief Boatswain's Mate), under very trying ircumstances, and the good example he constantly set, merits special mention.

My great "stand-by" and help throughout has been Adam Ayles (2nd Class Petty Officer), who, having been blessed with health and strength, adhered manfully to the ncreased exertions and labours thrown on him, from the general state of debility and veakness into which the remainder of the crew had so unhappily fallen.

In conclusion, I beg to render you, Sir, our most sincere thanks for the kind and vatchful care you ever exercised over us, and for sending us timely assistance which, under the blessing of God, very materially aided me in bringing my crew back to their hip in safety.

I have the honour to remain,
Sir,
Your obedient Servant,
PELHAM ALDRICH,
Lieutenant.

Capt. G. S. Nares, F.R.S.,
H.M.S. "Alert."

"Challenger" Sledge Crew.

Sledge Captain.—Joseph Good, Chief Boatswain's Mate (acting).
William Wood, Sergeant Royal Marines.
Adam Ayles, 2nd Class Petty Officer.
David Mitchell, Able Seaman.
James Doidge, Captain Fore Top.
Henry Mann, Shipwright.
Thomas Stubbs, Blacksmith.

Motto—*Fortitudo Vincet.*

Remarks on the Clothing, &c.

"Eugénies," or "Ugeens," as the men call them, the thoughtful gift of the ex-Empress of the French, have been constantly worn, and the means of affording great comfort by night and day. They are admirably adapted for wearing with or without sealskin caps, affording excellent protection to the ears.

Sealskin caps are very heavy and cumbersome, in many cases were scarcely worn at all, several men had—

Duck caps lined—caps made of duck and lined with some warm material—they fitted better over the ears, and did not get over the eyes so much, and with a skull cap and Eugénie appear quite warm enough.

Skull caps are admirable things, and wear very well.

Guernsies wear out very quickly; several of the men came without them, substituting blue fishermen's guernsies, or Baltic shirts, either of which are to be preferred.

Drawers wear out very rapidly. Good and Doidge have drawers made of fearnought, which, though somewhat heavy, wear splendidly, and enabled them to dispense with duffle trousers very early.

Grey boot hose wear very well, but the chamois leather was universally condemned and cut off.

Flannel wrappers, similar in shape and size to those made of blanket, are very light, dry quickly, and two pairs enables dry flannel to be put next the foot when about to march in the morning.

Moccasins in themselves wear splendidly, the liquid leather does not appear good for soling purposes, as it renders one liable to slip. The tops of the fishermen's boots are no use, as they wear out very rapidly; when the leather is taken from lower down it wears well, but renders the foot gear too heavy. The plain article is the best, if enough can be had.

Gaiters are of great use when separate from the moccasin, but when sewn on prevent the latter from being turned inside out, except with difficulty, to remove the condensation from the foot.

Kicking straps, made of duck, answered very well, the only drawback being the strap under the hollow of the foot, which collected snow between it and that very tender part, and rendered one very uncomfortable as it became compressed and hard.

Taut lacing. I found some of the men at first starting were in the habit of lacing round the bottoms of their overalls very taut; this cannot be good in very severe weather, as it must tend to stop the circulation.

Travelling boots have scarcely been used, being found rather slippery for snow work; when worn we found hardly enough room in the toes, and greatly improved them by cutting away the leather cap, and half way towards the heel.

Duffle trowsers are very good, they *do* let the wind through, but are not quite so liable to become stiff like box cloth.

Duffle jumpers were in many cases altered into coats by cutting them open in front, as we had very few gales of consequence; we found the latter much more easily worked than the former. We had no cases of shrinkage, like the autumn experience.

Mitts are a great difficulty; Shetland mitts shrink up at once; grey mitts are very good, but clumsy to work in.

Special mitts should be issued for cooks!

Overall suits, or snow repellers, are splendid things. The devices on the men's backs do not get much looked at; we found the neighbourhood of the heels of our next ahead nearer our favourite line of vision.

Snow goggles answered very well, but the boxes were not strong enough.

Waterproof sheet gives great trouble at the least approach of a moderate temperature (see Journal).

Tent and gear, all very good.

Kitchen. My autumn experience with a five-man tent without kitchen, enables me (short as it was) to see of what immense advantage a kitchen is.

Cook's boots I had made of engine-room sheet insertion, with wooden soles; they were large enough for the largest foot, with a complete set of foot gear on, to go in. They answered very well indeed, did not wear out, and were constantly used at night by men leaving the tent, and kept their foot gear dry. The tops were made of light duck, with a lacing to haul taut under the knee. Weight, 2lbs. 8 oz.

Coverlets, &c., very good indeed.

Water bottles. The majority, I think, lasted the journey, and therefore answered their purpose.

Equipment.

I had a small oval water bottle made of thin copper, to hold the same amount of water, with a screw cap and washer 2 inches in diameter, to screw down an opening, left to place snow in. By aid of a little spirits of wine I always had tea and hot water at command, with far less trouble and expenditure of fuel than lighting up the kettle, and I found it of infinite service when the men became sick; in other cases it acted as my own water bottle. It is also available, when encased in a flannel bag with lanyard, for getting warm water in, and applying to the stomach (dropped down inside the jumper), in case of cramp, &c.

Provisions, all very good.

Remarks on effects of pemmican are in the Journal; whether from sickness or some other reason, it was not generally cared about, and being the principal sustaining food, could be ill spared in its consumption. We saved fully 80 or 100 rations of it during the journey.

Compressed tea, excellent, easy to serve out, strong and good.

Biscuit; more of this could be eaten, could it be stowed on the sledge. From what I have seen of 42 days' provisions in a sledge, there is left but little room for more than the present allowance.

Cooking gear answered admirably, and stood the numerous kicks and blows it received without smashing. (See Journal, April 14th, for exception.)

Fuel—I found very little difference in time between stearine and spirit, in fact, the former was rather the quicker—$\frac{3}{4}$ lb. is fully equal to 1 lb. or a pint of spirits; it is very dirty, though.

H.M.S. "Alert," at Winter Quarters,
April 1st, 1876.

Sir,

I have the honour to forward you a list of my constant weights and provisions, packages, &c.

The "Bloodhound" assists me by bringing a 3-day depôt, packed in a small potato tin, weighing 47 lbs., an alteration by which the discrepancy in the respective weights of "Challenger" and "Poppie" will be accounted for.

On receiving this case at Depôt Point, both sledges will be provisioned as if they had started from the ship with 50 days' each (pemmican and bacon excepted).

I have also 15 days' extra stearine.

I have packed 3 depôts for sending on for Lieut. Giffard's and my return journeys—two 40-ration depôts in gutta-percha cases; one 64-ration depôt. These contain biscuit, stearine, ammunition, &c., in fact everything but pemmican, bacon, and rum. They are securely lashed, but the lids are not fixed, in order that they may be easily opened, should I find it necessary to send word back by Lieut. Giffard.

As I am only taking 14 pairs of duck boots, I should be glad to have a few extra sent out with the 64-ration depôt, if it can be conveniently arranged.

I have ordered the following clothing to be worn at starting:—

Body Gear.

1 Under flannel, double-breasted if possible.
1 Cholera belt.
1 Ship's guernsey.
1 Blue Guernsey, or Baltic shirt.
1 Check shirt.
1 Overall jumper.

Leg Gear.

1 Pair of flannel drawers.
1 Pair of duffle trousers.
1 Pair of overall trousers.

Foot Gear.

1 Pair of ship's flannel wrappers.
1 Pair of blanket wrappers.
1 Pair of grey boot hose.
1 Pair of moccasins.
Mitts, sealskin caps, and skull caps.

Knapsacks.

The spare clothing has been packed so as best to suit the various kits of the men, but with the following articles or their equivalents. Average weight 12 lbs., moccasins included.

1 Guernsey	1 Eugénie
1 Pair drawers	1 Towel
1 Flannel	Comb
1 Pair blanket wrappers	Paper
2 Pairs wrappers (flannel)	Pair stockings
2 Pairs sleeping hose	Face cloth
2 Pairs moccasins	2 Pairs spectacles
2 Pairs mitts	Pipe
1 Comforter	

Neither the "Satellite" sledge nor small cooking gear are included in the constant weights, but by substituting them for the 3-day depôt, a gain of 2 or 3 lbs. weight may be effected, if necessary to take them.

The average pull of 241 lbs. per man will be increased to 247 lbs. when the duffle jumpers are on the sledge.

I have the honour to be, Sir,
Your obedient Servant,
P. ALDRICH,
Lieutenant.

Capt G. S. Nares, F.R.S., &c.

Lieut. Giffard, according to present arrangements, will accompany me until the 18th day from leaving the ship, and will therefore require provisions on the 31st day; for this purpose one of the 40-ration depôts is intended. At his extreme point, he will deposit a 5-day depôt for me, and I shall arrange with him for the placing of my 8-day and 5-day depôts already referred to as being packed. As I have extra groceries on the sledge, and there is every probability of the full allowance of pemmican not being eaten at starting, a few days' extra travelling to Joseph Henry will not interfere with the original programme, but any farther delay will necessarily shorten Lieut. Giffard's journey beyond Cape Joseph Henry.

My journey will, unless unforeseen circumstances occur, extend for 76 days from the ship, and the date of my return should therefore be about the 18th or 20th of June.

PELHAM ALDRICH,
Lieutenant.

CONSTANT WEIGHTS.

	lbs.	oz.
Tent	37	0
Tent ropes	2	8
Coverlet	30	1
Extra coverlet	20	0
Floor cloth	17	0
Sail	9	6
Lower robe	23	2
8 sleeping bags	66	0
8 knapsacks	96	0
6 tent poles	26	15
Spreaders	1	0
Sledge trough	15	4
Sledge bottom	3	1
Store bag	27	0
Sledge battens	28	8
Runners	68	0
Sailing batten, complete ..	5	9
Drag ropes, spars, lashings, &c., fore and aft lines ..	22	0
Pickaxe	7	0
Shovel	6	0
Cooking gear, 2 lamps ..	30	0
8 pannikins	4	0
Medicines	12	0
Gun and slings (rifle carried)	7	8
30 in depôts: 75 rounds gun	8	0
20 in depôts: 50 rounds rifle	5	0
Rum cans	8	2
Cook's bag	4	2
Cook's boots	2	8
Instruments	13	0
Journals, charts, &c.. ..	3	0
Spirit cans	6	7
Duck boots, 14 pairs ..	38	8
Sledge flag and staff ..	2	8
Record tins	1	0
Constant weights ..	657	1

PROVISIONS.

	lbs.	oz.
47 days' biscuit	329	0
47 ,, potatoes	47	0
47 ,, chocolate	23	8
47 ,, sugar	47	0
47 ,, tea	11	12
50 ,, salt	6	4
50 ,, pepper	1	4
50 ,, onion	3	2
50 ,, currie	3	2
50 ,, rum	50	0
40 ,, spirit	40	0
Tobacco	10	0
30 days' pemmican	240	0
30 ,, bacon	60	0
Stearine in depôts, in lieu of spirits	10	0
Matches	1	0
50 days' stearine	75	0
Packages, consisting of a 5-day depôt case, bags, linen, 4 bread bags, 2 black bags, 3 pemmican tins, 2 bacon tins	52	0
Total on sledge.. ..	1,667	[illegible]

"POPPIE."

Constant weights	592	0
Provisions and packages ..	1,121	1
Total	1,714	0
"Poppie" will give "Challenger" 25 lbs. weight, to make sledges even in weight, which will be	1,692	
Average pull per man ..	241	

H.M. SLEDGE "CHALLENGER."

OUTWARD.							HOMEWARD.						
Journey.	March. Hours.	Lunch. Hours.	Depôts. Hours.	Cairns. Hours.	Made Good.	Travelled.	Journey.	March. Hours.	Lunch. Hours.	Depôts. Hours.	Cairns. Hours.	Made Good.	Travelled.
1	6·25	0·75	..	..	6·90	6·90	47	9·50	1·75	..	..	10·94	10·94
2	8·50	1·00	..	..	5·75	10·40	48	9·50	1·25	..	..	10·94	10·94
3	9·00	0·75	..	..	4·60	9·20	49	8·50	1·50	..	..	6·91	6·91
4	8·00	0·75	..	..	2·30	11·50	50	9·50	1·50	..	..	10·39	10·39
5	8·50	0·50	..	..	4·60	9·20	51	9·25	1·25	..	..	10·39	10·39
6	9·50	0·50	..	..	4·60	13·80	52	5·50	1·25	..	5·00	8·06	8·06
7	9·00	1·00	..	..	4·60	13·80	53	9·75	1·50	..	..	10·94	10·94
8	1·50	0·50	6·00	..	1·15	8·06	54	10·00	2·00	..	..	13·82	13·82
9	10·25	1·50	..	..	3·45	14·97	55	9·00	1·75	0·25	..	8·06	8·06
10	7·00	1·00	..	..	3·45	8·06	56	9·25	1·50	..	..	6·33	6·33
11	8·75	0·75	..	..	3·45	10·39	57	9·50	1·75	..	..	6·33	6·33
12	9·50	0·50	..	..	3·45	10·39	58	9·00	1·75	..	..	5·76	5·76
13	8·50	1·25	..	..	2·88	8·63	59	9·75	1·75	..	..	7·48	7·48
14	9·00	0·50	..	..	4·03	12·09	60	9·00	1·75	..	..	4·61	4·61
15	9·25	0·50	..	..	3·45	10·39	61	9·00	1·75	..	..	3·45	3·45
16	9·00	0·50	..	Yes.	2·59	8·06	62	9·00	1·00	..	..	4·03	10·40
17	7·75	0·50	1·00	..	2·88	8·64	63	10·25	1·50	..	..	4·61	8·06
18	9·50	0·75	..	..	2·88	8·64	64	10·50	1·50	..	..	7·48	7·48
19	9·00	0·50	..	..	6·33	6·33	65	5·00	1·50	2.50	..	4·61	4·61
20	9·50	0·50	..	Yes.	4·61	13·82	66	9·50	1·50	..	..	8·06	8·06
21	9·00	0·75	..	..	3·45	10·39	67	10·75	1·00	..	..	5·47	8·60
22	8·00	0·50	..	..	3·45	10·39	68	10·00	1·50	..	..	6·91	6·91
23	6·50	1·50	..	..	4·03	4·03	69	9·75	1·75	..	..	6·91	6·91
24	9·00	1·00	..	..	2·88	8·64	70	10·50	2·00	..	..	5·76	5·76
25	9·00	1·00	..	..	4·60	13·82	71	7·00	1·50	2·50	..	3·45	3·45
26	9·00	0·75	..	..	3·45	10·39	72	2·50	1·50	..	..	1·73	1·73
27	10·00	0·75	..	..	3·45	10·39	73	9·00	1·50	..	..	5·76	5·76
28	5·75	1·50	..	..	4·03	4·03	74	8·75	2·00	..	..	3·45	4·45
29	7·25	1·00	..	..	6·33	6·33	75	9·25	1·50	..	..	6·33	6·33
30	9·00	1·75	..	..	9·21	9·21	76	5·75	2·00	..	..	4·03	4·03
31	9·00	1·25	..	..	10·39	10·39	77	6·25	?·50	..	..	3·45	3·45
32	9·00	1·25	..	..	8·64	8·64	78	6·00	2·00	..	..	3·45	3·45
33	8·75	1·25	..	..	5·76	7·48	79	9·00	1·50	..	..		9·21
34	9·00	1·50	..	..	10·39	10·39	80	8·75	2·50	..	..		10·39
35	7·25	1·25	..	..	8·92	8·92	81	6·00	3·00	..	..	34·5	8·06
36	7·25	0·50	3·00	..	9·79	9·79	82	8·50	3·00	..	..		6·91
37	9·50	1·25	..	..	10·39	10·39	83	11·00	5·75	..	..		16·12
38	9·25	1·50	..	..	7·48	7·48	84						
39	9·50	1·50	..	..	8·06	8·06							
40	9·30	1·50	..	..	8·06	8·06							
41	9·25	1·50	..	..	9·79	9·79							
42	6·00	1·50	..	..	8·06	8·06							
43	9·50	1·50	..	..	10·39	10·39							
44	9·25	1·50	..	..	10·94	10·94							
45	9·00	1·75	..	..	8·06	8·06							
46	4·00	0·50	..	..	4·61	4·61							

The distances travelled and made good published in the Journal are all in geographical miles. The accompanying table shows their value in statute miles.
The length of journey is given in hours and decimals of an hour.

Statute miles travelled outward	432
Statute miles made good outward	262½
Statute miles travelled homeward	277
Statute miles made good homeward	244½
Total distance travelled in statute miles	708
Total distance made good in statute miles	506½
Average length of march in time outward (in hours)	8·36
Average length of march in time homeward (in hours)	8·62
Total hours marching on outward journey	384¾
Total hours marching on homeward journey	319
Total hours marching throughout	703¾
Average speed maintained throughout (in yards)	1,770
Average speed maintained on outward journey (in yards)	2,047
Average speed maintained on homeward journey (in yards)	1,487

The average length of the daily journies here shown are exclusive of time occupied in building cairns, cooking luncheon, stowing depôts, packing and unpacking sledge, &c., except when advancing by half loads.

P. ALDRICH.

Monday, April 3rd.

Temp. — 31°
Calm o. m.

First Journey. At 10.45 A.M. the various sledge crews assembled on the floe alongside, and prayers were read. Shortly after 11 we all started in line of battle, everyone in high spirits and good health. Took leave of the Captain a quarter of a mile from the ship, and also from the few shipmates we left behind us, cheers being exchanged. Found the travelling very good inside the line of grounded floebergs, crews keeping well together. Halted for lunch at 2.15 P.M., under way again at 3 P.M. Commander and I walked ahead to look for a route across Mushroom Point, which we found to be easy. Snow became deeper, and travelling not so good during the afternoon. Camped at 6 P.M. south of Mushroom Point. Sastrugi from the westward.

Temp. — 33
Calm o. m.
Inside tent — 10°

Made good, 6 miles.
Marching, $6\frac{1}{4}$ hours.
Lunch, $\frac{3}{4}$ hour.

Tuesday, April 4th.

Temp. during night — 5°
Breakfast + 8°
Temp. — 31°
Calm b. c. m.

Second Journey. Cook called at 5.30 A.M. Breakfast. Prayers. Double-manned the sledges over the land into Ravine Bay. Good and Hill not at all well, probably over-strain and undue exertion yesterday. Travelling across sastrugi towards Harley Spit not so good as yesterday, and heavy work with heavy sledges.

Dr. Moss and I started off to visit the snow hut I left in Dumb-bell Bay in the autumn. The tent which was laid over as a roof was nearly covered in snow, but appeared in thoroughly good order. Found a fox had made its way into the hut, and evidently got hold of the few provisions in there, as we picked up a piece of dog biscuit some 300 yards away on the floe. Drew out a tent pole, and placed it to attract anyone who might be seeking the hut.

Returned to the sledges, which were obliged to double-man at different parts of the journey. Yesterday and to-day have constantly come across wolf tracks, going north and south, hunting singly. The "Poppie" appears to haul heavier than we do; sent crew back to give them a pull up while lunch was preparing,

Temp. — 22°
Calm b. c. m.'s.

Halted for lunch on Sickle Point, between Ravine and Dumb-bell Bays, at 11. Under way at noon. Double-manned across soft and deep snow and small hummocks till within $\frac{3}{4}$ mile of Harley Spit, when we got on to this year's ice, and made good way, again single-manned.

Temp. — 32°
Calm.

Double-manned across Harley Spit, and found the good ice-foot of the autumn covered in soft snow. Camped at 5.30 P.M., about one mile south of the boats, on the low shelving land.

Marching, $8\frac{1}{2}$ hours.
Lunch, 1 hour.
Made good, 5 miles.
Travelled, 9 miles.

Good slightly frostbitten on small toe of right foot, circulation easily restored.

Hill is not well, and shows signs of exhaustion and over-fatigue; administered 30 drops of sal volatile.

Temp. inside — 5°

Appetites exceedingly small, except Ayles' and my own; we ate as much as we could get.

Wednesday, April 5th.

Temp. — 32°
Lt. air N.W. b.c.
Temp. in sun — 15°
Temp. of tent during the night — 25°
At breakfast + 12° for a few minutes.

Third Journey. Called cook at 6.15 A.M. A fine but cold morning. My two patients somewhat better, but not altogether right.

The Commander, Parr, and I walked on ahead together, the two former to search for the boats left in the autumn, and I to examine the travelling direct for Depôt Point. Finding it pretty good, I turned inshore and walked up the hill over the boats, and thence back to the sledges, which had started at 9.15, double-manned, through soft snow along the land. After following the coast for about a mile, we turned off on to the floe, passing through a fringe of floebergs forced up on the shore. This floe was composed of old ice, such as we understand by "Palæocrystic Floe," with rounded hummocks, and valleys between them. The former, which were blue-topped, and free from snow in the autumn, and as slippery as glass, now appeared nearly level, the valleys being filled with soft snow, with here and there patches of well gored sastrugi, which ren-

ered the travelling with heavy sledges far from comfortable, and double-manning ecessary. Halted for lunch at 1 P.M. Temp. — 31° Sun — 20° Calm b. c.

Camped at 6 P.M. a little east of Simmons Island. It has been a magnificent day, hich has partly compensated for the travelling, which has been very trying to the ews, from the sledges taking charge down the round ice hillocks, and bringing up harply in a most unpleasant manner. Temp. — 41° Calm b. c.

Made good, 4 miles.
Travelled, 8 miles.
Marching, 9 hours. Lunch, $\frac{3}{4}$ hour.

Good complaining of looseness; and pain in the stomach. Gregory administered. ergeant Wood, a pain in the chest, for which I threatened mustard plaster.

Hill exceedingly unwell, with a nasty pain across the chest, and flatulency. Gave m a good dose of ar. spirits ammonia, which, however, did not ease him much.

I had reason to appreciate the possession of a little gauze spirit lamp, kindly lent e by Mr. Wootton. By its aid, and that of an oval water bottle with an orifice in top, rge enough to admit of putting snow in it, I succeeded in obtaining water for medical urposes, without condemning the cook to the extreme cold outside the tent. As it as, I found it quite cold enough at −26° inside. Doidge (who was on this occasion my edical assistant) and I spent a very cold and uncomfortable night, the internal pains the sick men causing them to double up in a way which prevented our getting own into our sleeping bags, and we were glad when it was 6 A.M.

Thursday, April 6th.

Fourth Journey. Called cook at 6 A.M. Good and the Sergeant pronounced themlves all right, but no improvement in Hill. Dr. Moss paid us a visit, and recomended the latter should be excused hauling, which advice was accordingly dopted.

Under way at 9.15 A.M., and proceeded double-manned. Travelling much the me as yesterday. Temp. — 35° Calm b. c.

After getting on about 2 miles, the Sergeant complained of his chest, and I was bliged to fall him out. Fortunately, it was a bright sun, and quite calm, otherwise my vo lame ducks would have been very badly off, for they could walk but very slowly, nd Hill became so ill he had to be supported along.

The Commander's party drew ahead of us under these circumstances, and at 15 P.M. I determined on camping, and trying to bring the sick round by the following ay.

Lieut. Giffard took on his sledge, assisted by all of my crew who were available. hey started at 2.15 P.M., after lunch, and on reaching Depôt Point my crew returned, aving the "Poppie's" camped with the Commander's party. My afternoon was ot particularly lively, and very cold, watching and walking up and down. Temp. — 37° Calm b. c.

Dr. Moss came back during the afternoon, and recommended treatment for the sick, hich I gladly availed myself of.

Distance made good, 2 miles.
Travelled, 6 miles.
Marching, 4 hours.
Crew marched, 10 miles.
" 8 hours.

Friday, April 7th.

Fifth Journey. Called cook at 6.30 A.M. The Sergeant and Hill much as yesterday, both valked on ahead arm in arm. Giffard and his party arrived at 7.15 A.M. Under way at 9. Travelling much as yesterday across an ancient hummocky floe. When within about of a mile of the Cliff, we arrived on some level ice of this season's formation, followed along the land, and reached Depôt Point about 11 o'clock. The old ice appears to eep clear of the land running in from Depôt Point, leaving a lane of water during the ummer; in fact, when here in the autumn it was not frozen over hard enough to ear. Temp. — 42° Calm b. c. m.

While on our way to Depôt Point, we met Geo. Bryant and his sledge "Bloodound" returning to the ship, and sent by him a short note to Capt. Nares.

"Challenger" and "Poppie" each took 56 lbs. of pemmican from the depôt, and he former a 24-ration depôt deposited by "Bloodhound." Equalized weights on both

sledges, which I think are increased by 84 lbs., and leave them as heavy as when we started.

Dr. Moss paid Hill a visit.

Giffard and I walked up the hill above the depôt, and observed the Commander's party about ½ a mile distant.

The grounded floebergs are piled close up to Depôt Point to the northward and eastward, and we found the travelling rather rough for about 150 yards, when we got on to an old hummocky floe, the sledge sinking so deeply in the soft snow, we were compelled to double-man.

We derived much benefit from the Commander's party being ahead, as they marked and cleared the road for us. Halted for lunch at 1.40 P.M., which we got over in half an hour, as we brought both cooking gears on in the leading sledge, lit up, and returned for the rear sledge during the cooking. Worked on till 6 P.M., then camped. The men very tired and very hungry, but unable to eat the whole allowance of pemmican. Immediately on getting Hill into his bag, I applied a mustard plaster under the advice of Dr. Moss. I kept both him and the Sergeant well on the move all through the day, and notwithstanding the low temperature, they escaped frost-bite, though they complained terribly of cold feet.

Temp. — 26°
Calm b. c. v.

Made good, 4 miles. Travelled, 8 miles.
Marching, 8½ hours. Lunch, ½ hour.

Most extraordinary effects from mirage about Cape Joseph Henry, and great visibility of objects. Clouds came over from the S.W. during the forenoon, and the temperature rose to — 26°, a great improvement.

April 8th.

Temp. — 37°
Calm b. c. m.

Sixth Journey. Roused cook at 5.30 A.M. Under way at 8.30. Made good progress across Palæocrystic floes separated by fringes of hummocks, through which the roads required careful picking. Dragging the heavy sledges among the hummocks severely tested the material and workmanship, of both of which it is impossible to speak too highly.

Temp. — 26°
Sun — 7°

Halted for lunch at 1 P.M. Proceeded at 1.30, and camped at 6.45 P.M. about ½ a mile astern of the Commander's party,

Temp. — 36°
Calm b. c.

Made good, 4 miles. Travelled 12 miles.
Marching, 9½ hours. Lunch, ½ hour.

The Sergeant has been doing a little dragging. Hill is still much the same. Adopted the same treatment for him as last night.

I have felt a slight touch of snow blindness, and, in consequence, ordered goggles to be worn to-morrow.

April 9th.

Temp. — 34°
Calm b. c.

Seventh Journey. Called cook at 6 A.M. We all find the cold strikes *upwards*, the coverlets are quite ample above, but the lower robe and waterproof sheet do not render us at all comfortable underneath, and we turn round and round like a joint of meat on a jack.

Under way at 9. Hill much the same, and no use for pulling. Travelling much as yesterday—heavy on some floes and a little easier on others—occasionally passing through hummocks, in doing which we derived great advantage from the leading sledges.

Steered as direct as possible for Conical Hill until lunch, when we hauled a little more in shore. Towards evening the Commander caught sight of the depôt, which is situated on a slight rise just south of View point, and some 4 or 5 miles south of Cape Joseph Henry.

Temp. — 35°
Calm b. c.

Camped at 7 P.M. about 4 miles south of Conical Hill.

Made good, 4 miles. Travelled, 12 miles.
Marching, 9 hours. Lunch, 1 hour.

Elias Hill shows such evident signs of weakness, that Dr. Moss recommends his return to the ship. Commr. Markham has ordered David Mitchell, A.B., to take his place in my crew. I regret losing the services of such a man as Hill, he is so willing, and thoroughly hard working. To look at him, he appears out-and-out the most powerful man in the crew, but he has collapsed suddenly, and, like all very strong men, feels his weakness all the more keenly.

The Commander's party camped half a mile ahead.

Monday, April 10th.

Temp. —32°.
Calm b. c.

Eighth Journey. Roused cook at 5.30 A.M.

Left Good to advance the sledges beyond the Commander's encampment to a spot I ultimately marked for them on the edge of a floe.

Giffard and I walked on and joined the Commander, proceeding with him, and some of his party dragging an empty sledge, to bring off the depôt.

We found it a rather rough and tumbly road in to the depôt, as the floebergs are jambed together, and very much broken, for 2 miles from the shore. It was necessary to have 3 or 4 hands ahead with pickaxes to clear the road. On reaching the depôt, all was found in good order, and, while the tins were being stripped off and sledge loaded, the Commander, Giffard, and I walked up a hill over View Point, from which we got a glimpse of the ice and country in general.

The former was not at all encouraging, very small floes, and plenty of very large floebergs and hummocks.

Bearings from the hill:—

Conical Hill	N. 105° 15′ E.	3 miles.
Observation Peak	N. 63 50 E.	5 to six miles.
Mount Pullen	N. 254 20 E.	
Cape Rawson	N. 240 45 E.	
West pap of Gap Mountain	N. 3 40 E.	

Much as I disliked the look of the ice, I did not like to adopt the overland route, without having a little actual experience among the hummocks. As for an overland route, my view from Observation Peak in the autumn leads me to believe there is one, but the travelling will be good or bad according to the condition of the snow, of which there was, and is apparently, plenty. On our way down the hill, we crossed a few hare and ptarmigan tracks, and reached the sledge as lunch was cooking. Received an invitation to lunch with the "Marco Polos," which I gladly accepted. Sledge travelling, however, does not admit of showing much hospitality, and the rations we consumed at lunch away from our own party were duly made up for during the day. Lunch being over, we floundered our way back, and found "Challengers" and "Poppies" camped as ordered. We received from the depôt sledge 80 lbs. of pemmican and 24 lbs of bacon. which, with 3 days' extra groceries we had on leaving the ship, completes both sledges to 42 days' provisions.

Owing to the time occupied in getting off the depôt, our journey has not been a long one. Made good, 1 mile.

Cloudy to the S.W. during the day. Calm and fine.

Received David Mitchell, A.B., from H.M. Sledge "Bulldog" in lieu of Elias Hill (Marine), returned sick.

Before camping, or rather before supper, Giffard and I walked on to look for a road through a fringe of hummocks which lay directly in our course for to-morrow; having found which returned to the tents, the Commander's party having moved on to our encampment.

M. G. 1 mile
Travelled 3 miles
Depôt 4 miles

Tuesday, April 11th.

Temp. — 12°
Calm o. f.

Ninth Journey. Called cook at 4.30 A.M. Started double manned at 7.30 A.M. A dull, thick morning, which made piloting through the hummocks awkward and disagreeable work. Proceeded till 11.45, and halted for luncheon.

Fearing a continuance of thick weather, and finding there was no hope of turning westward, except by going some miles farther than I wished before rounding Cape Joseph Henry, I determined on turning back, and trying the overland route.

Dr. Moss, Mr. White, and their respective sledge crews, were returning at the same time without a sledge, and, as they assisted Lieut. Giffard and me, we were able to return to our yesterday's encampment without double journeying.

Although I regret the half journey thus lost, I am glad at having experienced a few of the very many difficulties which I fear will hamper the Northern Division. I am afraid they will meet with very small floes, and very heavy and wide fringes of hummocks. Double banking and road making will be constant.

At 1.15 P.M. hoisted colours, and exchanged hearty cheers and good wishes with the Northern Party. The weather cleared splendidly during the afternoon, and we reached our yesterday's encampment at 2.30 P.M. At 2.45 took leave of Dr. Moss, Mr. White, and their crews, and we then double banked the sledges over a very rough road through the shore hummocks. The handling of the heavy loads required great care, and additional picking was necessary in some places.

The weather got thick again, which did not add to our speed or comfort.

Camped at 7.15 P.M., about ½ a mile from the shore.

The men are fairly done up, and very glad to get into the tents. Ayles has a slight touch of snow blindness in his left eye, and Stubbs has a blister on his foot, nothing serious.

Temp. — 4°
Calm o. c

Until to-day the "Challengers" have not pulled 7 men since the first journey.

During the clear part of the day there was a magnificent display of radiating cirrus in the west, and prismatic colours close to the sun; a parhelion was also visible at times.

Temperature inside tent at tea, + 20°.
Made good, 3 miles.
Travelled, 13 miles.
Marching, 10¼ hours.
Lunch, 1½ hours.

Grey mitts appear to be wearing out very rapidly, and one pair of moccasins are showing distress in the extra soling.

The spirit lamp is very awkward to handle, as the top and the burner plate unscrew the same way, hence, when there is the least jamb, it is a mere chance which becomes unscrewed first.

Goggles are worn by the men, who say they experience little or no inconvenience from them. I differ from this personally, and find them considerable drawbacks picking a way through hummocks.

Compressed tea is excellent, and the allowance ample. We are saving 25 per cent., and still having capital tea.

Everyone has eaten a full pannikin of pemmican to-night for the first time.

April 12th.

mp. tent + 20°
ter cocoa + 31°
r (shade) −10°
n − 1°

Temp. in sun.
2 p.m. + 6°
Northly. 1, b. c.

Tenth Journey. Called cook at 7; a fine morning; calm. The tent very comfortable during the night, and everyone slept well. 41 days' provisions on sledge.

Leaving Giffard to come on with the sledges, I walked on to examine the route, about 9 A.M. After clearing the shore hummocks, I got on to an excellent ice-foot, and soon arrived at View Point, on which I found the snow was quite hard, and very good for the sledges to come over. In crossing I observed a deep chasm or crevasse, about 50 to 60 feet above where the floebergs are piled close on the point. It was from 60 to 70 feet in length, and about 20 feet deep, evidently caused by the whole mass of the snow below it having slipped towards the floe. It was bridged over for some 4 or 5 feet by snow 14 inches thick. Looking down into it, I found the upper or shore face of it appeared more like a wall of ice, while the opposite side resembled drifted snow. It would not be a pleasant hole to get sledges into. After leaving View Point I walked on in the direction of my autumn encampment, passing the entrance to a ravine ½ a mile from the point leading to the westward. The travelling I found good in places, but in others soft and rather deep snow. Altogether, however, I was well pleased at its being so much improved on what I had met with in the same place in the autumn.

When within about 200 yards of the camp I turned up a hill to the left, rounded at the summit, and very steep. My aneroid gave the height as 1,100 feet, but I do not think much dependence can be placed on the instrument this weather. I put the height down as 800 or 900 feet. From what I saw up here, I decided to take a look at the ice round the foot of Conical Hill, and should there be no route there, go overland to the westward, which appeared possible, although there were several patches much clearer of snow than I hoped to have seen.

Bearings from summit of hill:—

Conical Hill	N. 175° 32′ E.	1½ miles.
Joseph Henry Peak ..	N. 104 30 E.	2½ „
Hill above View Point ..	N. 245 15 E.	3½ „
Mount Pullen	N. 251 15 E.	

The ice close off the cape is broken and crushed into bubbling masses, which appear to offer no chance of getting a sledge along at all; but 2½ to 3 miles clear of the land there were a series of floes, with but thin fringes of hummocks between them, stretching away for 6 or 7 miles, and which seemed to be somewhat easier travelling than that in which we left the Northern Division. Of that party I could see nothing. On descending the hill I walked back more to the westward, gradually bearing towards the coast, over travelling sometimes hard and sometimes soft, but not unfavourable on the whole. I reached the sledges about 1 mile south of Conical Hill at 5 P.M., and found that Giffard had gone in search of me. Giving Good orders to camp, and after a bit of biscuit and a most acceptable water bottle full of cold tea, which they had kept for me, I started off to have a closer look at the ice round the foot of Conical Hill.

I got about 200 yards farther than I did in the autumn, but found no road for sledges.

The ice has been forced up and broken against the exceedingly steep shore, till in places it forms a curl, and resembles the back-wash of water from a rock; where this occurs

there are generally lanes of young ice below and outside it, but an end soon came to these, and the ice is piled close up against the shore, without ice-foot or leads of any description.

With all this, however, the floebergs did not appear so high as those close to the ship; probably the water is rather deeper, or it shoals too rapidly to admit of their being forced up, without first crushing them in pieces; the interstices being filled with snow, gives the whole the appearance of well worked soap suds.

I crossed several hare and lemming tracks, one of the former led outside Conical Hill, and to the northward along the ice as far as I went. I reached the tent shortly after 7 P.M., and found Giffard returned.

The sledges had double-manned into the shore, then single banked to View Point, doubled over the hill, and either single banked or in tow of one another until camping.

The men say the "Poppie" pulls much the heaviest of the two sledges; the weights are equal, and it may perhaps be due to the long trough (a 12-man) making the sledge too rigid.

Temp. − 25°
Calm b. c.
Temp. in tent at tea + 15°

A great deal of condensation in the tent.

Marching, 7 hours.
Lunch, 1 hour.
Made good, 3 miles.
Travelled, 7 „
No sickness.

April 13th.

Eleventh Journey. Roused cook at 4.15 A.M. 40 days' provisions.

Tried pemmican before cocoa as an experiment, at the request of the men, who, however, came unanimously to the conclusion that it is not so good a plan as having cocoa first, pannikins being cleaner and warmth put into one quicker. We all spent a very cold night, the coverlets being very stiff, and covering us more like a dome than anything else.

Temperatures:—
Tent before breakfast + 12°
At breakfast + 18°
Air − 20°
Calm o. c. m.

Under way at 7.30. All hands working splendidly, tugging the sledges up hill across hard and soft snow alternately. Soon after leaving camp bore away into the ravine, and followed its course W.N.W. for about two miles, when, finding it turned away more to the southward, hauled the sledges up a steep bank on its north side, and halted for lunch at 12.45 clear of the ravine, on very rough scored and hard sastrugi.

Proceeded at 1.15, W.S.W., up a steady incline across heavy sastrugi from N.W. to S.E., steering for the West pap of Gap Mountain.

Giffard and I walked ahead, and in rising a ridge we came across several ptarmigan and hare tracks, and shortly after five of the latter animals were seen on a hill to our right. Giffard succeeded in following them and getting four.

Unfortunately the weather was too misty for us to see very far ahead. The land we are travelling over is a steady, gentle incline, extending from hills about 1,000 or 1,200 feet high on the right, to a low ridge which runs in a westerly direction from the hill over View Point on the left. In several places the snow has been swept clean by the wind, and the bare patches of shingle do not look very promising.

Our course hitherto has laid as close along the foot of the hills on our right as travelling would permit. The ravine we travelled up, after turning to the S.W., loses itself in the ridge from View Point. At 5.0 P.M. we came to a patch which would necessitate half loads, so camped for the night, the men having done an excellent day's work.

Temp. −20°
Calm o. m.

Bearings taken at noon:—

Conical Hill	N. 147° 40′ E.
Hill over View Point	N. 229 0 E.

Made good, 3 miles.
Travelled, 9 miles.
Marching, $8\frac{3}{4}$ hours.
Lunch, $\frac{3}{4}$ hour.

The hares formed a splendid dinner, which showed me good appetites existed, under certain circumstances.

A great cry for glycerine and ointment, the cold and sun having touched up the faces a great deal. Received 5 days' bacon from "Poppie," as arranged.

Have ordered duck boots for to-morrow if the temperature will admit of it.

April 14th.

Temperature—after cocoa + 27 Calm b. c. m. Air — 20°

Twelfth Journey. Roused cook at 4.0 A.M. 39 days' provisions.

Became misty, with light snow falling, as we started at 7.45. Duck boots worn.

Leaving the tents and sleeping gear, the sledges were double-manned across ¼-mile of nearly bare ground; returned to porterage the rest of the gear, packed sledges, and started double-manned up hill, across hard and heavy sastrugi from N.W. to S.E., over which the sledges plunged like a ship in a seaway.

Obliged to bear away still farther to the S.W. to clear the foot of the hills, which were quite bare of snow. Giffard and I walked on about 2 miles, finding the travelling much the same all along. A mile and a half from our previous camp, an opening in the hills on our right about ¼ of a mile broad, came into view, and the ridge, hitherto our southern boundary, came to an end, about a mile farther on. A deep ravine runs round this to the S.W., and from what I have since heard, probably turns more south still, and runs into the bay south of View Point. The weather is, however, too thick to admit of seeing much. Light snow still falling. Halted for lunch at 1 P.M.

Calm b. c. m. s. Temp. — 15°

After lunch Giffard and I walked up a valley to the N.W. (that which we had caught a glimpse of in the forenoon). It led between Mount Julia and a hill nearly as high to the west of it, was about 1½ miles long, and ½ a mile across. At its northern entrance, we found it to be at a considerable elevation above a snow plain, the descent being too steep and uncertain to make it a safe road for sledges. A route, I think, might perhaps have been found, by going down a very narrow and steep gorge or ravine, but it did not look favourable, and as the sledges had got beyond the south entrance to the valley, I determined in keeping still to the westward. We saw land through a driving mist, bearing about N.W., and which I think is Cape Hecla.

At the N.W. end of the valley, a keen N.W. wind was blowing, which caused several slight frostbites in the faces of both of us. As we returned, we passed through a region of calm, and were then met by a S.E. wind.

We saw very few tracks of animals, and none fresh, so that our hope of getting a continuation of yesterday's luck is not so high as it was.

Temp. — 20° South 2, b. c. m. Temp. inside at tea + 12°

Reached sledges and camped at 6.15 P.M., about 400 feet above the level of the sea.

Made good, W. S.W. 3 miles.
Travelled, 9 miles.
Marching, 9½ hours.
Lunch, ½ hour.

A brilliant parhelion visible.

We find camping ashore much warmer than on the floe. Duck boots are generally approved of, but the leather on the toes does not give room enough, and we found cutting it off a decided improvement.

The handles of our stewpan have broken off, the fitting is not nearly strong enough for the work.

April 15th.

Thirteenth Journey. 38 days' provisions left. Roused cook at 6 A.M. A very high wind in squalls from the N.W. 2 to 7 during the night, with a good deal of drift. Two of the party lost their overall trousers from not being careful in stowing them overnight. Under way at 9.15 A.M. Singled banked a short distance, then obliged to double-man over thin snow and occasional pebbles. Giffard and I walked on, and from 3 miles ahead were rejoiced with a sight of Cape Hecla, and apparently an easy route towards it. Back to lunch at 1.30 P.M., wind very keen, could not get tea to boil, made a virtue of necessity, and drank it without. Not a comfortable day!

Thermometer inside at breakfast + 10° Air — 10° N.W. 3.5, b. c. q.

The "Poppie's" 8-man apparatus acted very well; mine, being an altered 12-man, is never so quick in action, probably from the kettle holding an extra pint, but we derive advantage from the stewpan being larger, and on the whole prefer it to the former.

During lunch the wind increased, with drift; doubled-manned, nearly head to it. Several cases of frostbite, but none serious. Giffard and I constantly looked at the men, and the brisk walk back before the wind for the second sledge was very beneficial, we worked in short fleets in consequence. Camped at 6 P.M., having altered course for Cape Hecla, nothing of which, however, was to be seen for drift and mist.

Temp. — 17° Atteainside — 10° N.W. 2.6, b. c. m. q. z.

Made good, 2½ miles.
Travelled, 7½ miles.
Marching, 8½ hours.
Lunch, 1¼ hours.

We have to-day altered course gradually round the foot of hills on our right, until finally we hauled up N.W. by N. for Cape Hecla.

The country between the hills is undulating, with very little snow in places, and a shingly and gravelly soil, on which the sun has begun its work already. The two principal leading marks for the route we have come, are (1) the hill over View Point, from which the general course is almost W. S.W., until you haul up N.W., just south of a solitary conical mountain (Guide Hill) about 1,000 or 1,200 feet high. I do not think we have ever been more than 500 feet above the sea level in crossing the land.

Most of the men wore duffle jumpers to-day. I left it a voluntary matter, as some perspire much more readily than others, and it is, I think, unadvisable to adopt a hard and fast rule under such circumstances.

All wore face cloths of various descriptions, which were more useful than ornamental.

No traces of game to-day, a northern aspect may account for it. The tent is very miserably cold. We are very glad to have an anniversary to keep—Captain Nares' birthday, and one year in commission. We wished the former health, happiness, and prosperity, and success to the Expedition, in an extra glass of grog.

Sunday, April 16th.

Fourteenth Journey. 37 days' provisions left. Called cook at 6, after I had had a look at the weather. Wind still from N.W., force 5. The beckets for sleeping bags would be improved if made of sennit, and the buttons might be larger with advantage. Easter Sunday. Read morning prayers. Under way at 10; course, about N.N.W.; double-manned as usual. Sastrugi running more north and south.

Temp. inside − 10°
Air − 26°
N.W. 5, c. q. z.

During the afternoon the snow became much softer, and from that, and the very level space before us, we concluded we must be on ice. All doubt was set at rest by Giffard and myself walking on to examine a huge mass about 2 miles off, and which we found to be a large floeberg; on one side of it a snow drift was formed, some 20 feet deep. We looked round for more, but they are few and far between, the remainder of the ice being apparently very level, and covered in deep snow. The extent of the bay (James Ross Bay) is from Cape Hecla, along a shelving shore, sloping down from the United States Range, in a north and south direction, about 9 miles; then it curves round to the eastward, about a mile north of Guide Hill, forms a small pocket or bight, as it goes again to the northward, and joins the snow bluffs and Near Cape of my autumn journey.

Just east, and a little south of Cape Hecla, is a small island (Crozier Island).

Calm b.
Temp. − 25°
Inside at tea + 6°

The afternoon cleared beautifully, and wind all died away. Camped at 7.30 P.M. An Arctic evening in all its splendour!

Made good, 3½ miles.
Travelled, 10½ miles.
Marching, 9 hours.
Lunch, ½ hour.

Bearings from camp:—

Observation Peak	170°	45′
Right Extreme Crozier Island ..	104	45
Left Extreme ,, ...	94	40
Cape Hecla	87	30
Guide Hill	284	30
Snow Cliffs	150	30
(Proposed) Cairn on island	100	20

Sun left of cairn, 74° 32′. Chron., 11h. 7m. 45s.

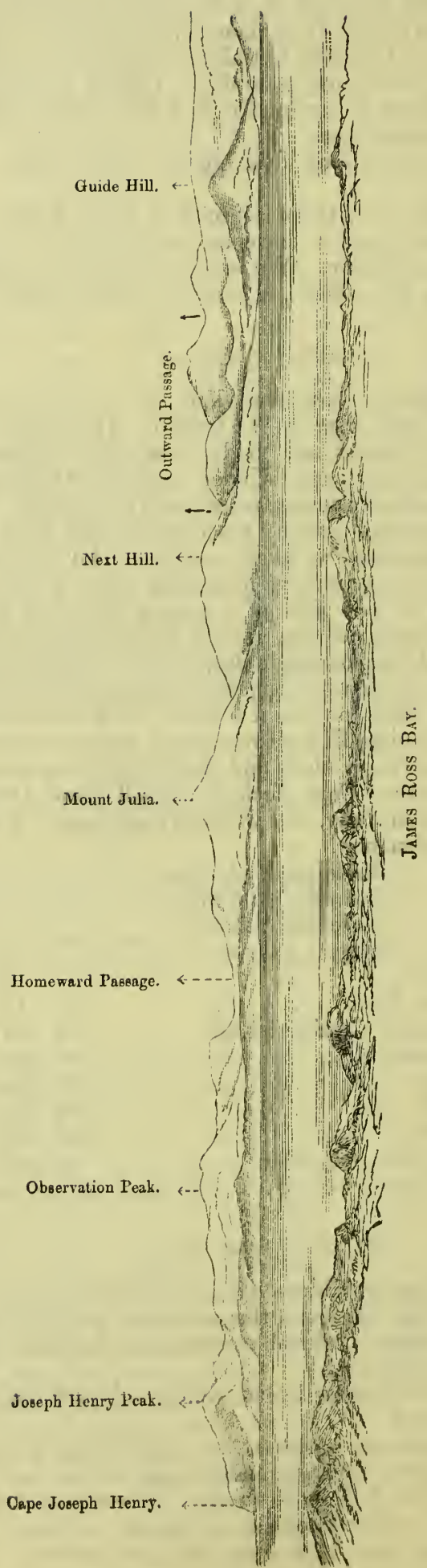
Monday, April 17th.

Fifteenth Journey. 36 days' provisions left. Called cook at 6.30 A.M.; under way at 9.30. Tried single-manning, but found the snow too heavy, although we were all heartily tired of double banking. Ordered moccasins to be worn again. Halted for lunch at 1.30 P.M. Temp. − 30°.

Temp. inside + 15°.
Temp. − 28°
N.W. lt. air, b.

Giffard and I walked on to Crozier Island, which took us 2 hours 53 min. to reach the summit; walking rather bad.

The island is very steep on its northern face, right along to the southward, it is steep two-thirds of the way down, then gradually slopes to the ice. It is about ¾ of a mile long, and lies N.W. by W., S.E. by E. (true). It is composed of shingle, and has the appearance of having been either forced up by the ice, or being the result of cumulative silting from the washing down of so many hills and ravines. The height of the island is about 250 feet.


Guide Hill.
Outward Passage.
Next Hill.
Mount Julia.
Homeward Passage.
Observation Peak.
Joseph Henry Peak.
Cape Joseph Henry.
James Ross Bay.

The line of hummocky ice and hummocks does not approach the island by over a rle, taking leave of the coast by the snow bluffs, and going very close to, but I do not tink against, Cape Hecla.

The coast line round Cape Joseph Henry is precipitous for 2½ miles, and runs out W. by N., where the steepness ends, at the entrance to James Ross Bay, in the sow-clad precipices of my autumn chart. Against all this the hummocks are closely cked and jambed.

There appears to be a more direct route back to View Point, passing between bservation Peak and Mount Julia.

Bearings from the summit of the island :—

Cape Joseph Henry	211°	15′	7 miles.
Joseph Henry Peak	214	45	6½ ,,
Observation Peak	225	15	6 ,,
View Hill	236	2	10 ,,
Mount Julia	251	00	5½ ,
Next Hill	262	15	7 ,
Guide Hill	283	15	8½ ,,
Cape Hecla	58	50	3 ,,

Cape Hecla, although a little shelving at the foot, appears to have the hummocks its vicinity, and as I think we see a short and direct run overland, we shall try it stead. Reached sledges, and camped at 7.15 P.M.

Marching, 9¼ hours.
Lunch, ½ hour.
Made good, 3 miles.
Travelled, 9 miles.

Bearings from camp :— Temp. air — 29° At tea + 15°

Cape Joseph Henry in transit, with snow cliffs. .	S. ¾ W.
Centre of island	S.E. ¾ E.
Cape Hecla	E. ¾ N.
Guide Hill	W. ¼ N.

A ptarmigan was within 15 yards of the tent last night. Passed a fox track on e floe, one ptarmigan track on the island. Have requested Lieut. Giffard to take two nds, and erect a cairn on Crozier Island to-morrow.

Our bottle of glycerine has come to grief, the cork coming out in the serjeant's cket. I don't think it is much loss myself; the ointment is more easily handled and tter.

Tuesday, April 18th.

Sixteenth Journey. 35 days' provisions left. Roused cook at 7 A.M. All hands ept warm and well. The two men who lost their overall trousers have fitted emselves out with others made of a check shirt, which answer the purpose mirably.

Good a little unwell this morning, and through the night. Wrote record for the irn on Crozier Island, giving the names of the party, and information about the orthern Division, North Coast of Greenland parties, and winter quarters of the xpedition. Tent at breakfast + 24° Air — 15° Calm b. c.

Lieut. Giffard, Ayles, and Symons, started off for the island at 9.30 A.M. I irected Good to bring the sledges on, steering midway between Cape Hecla and the alley, for which latter I now set out, to explore a route. In a couple of hours I ached a small pinnacle on the side of a hill, about 700 feet above the sea level, from hich I saw the way was easy, and would take us in a direct line, or nearly so, to the ext cape. Between here and the cape (subsequently called Cape Colan) is level floe om 10 to 15 miles across, apparently free from hummocks, and promising fair avelling.

Bearings taken from the hill :—

Cape Joseph Henry	198°	45′
Crozier Island	169	30
Extreme (C. Colan)	30	35
Peak above Colan .. .. : ..	26	32
Highest point in same range	20	45

Walked back to the sledges, which I reached at 1.30 P.M. Altered course for the alley. The travelling heavy, over deep and crusted snow. Reached the shore, and roceeded up a gentle slope till 7.30 P.M. Camped.

Calm b. c.
Temp. − 20°
Inside at tea + 15°

Made good, $2\frac{1}{4}$ miles.
Travelled, 7 miles.
Marching, 9 hours.
Lunch, $\frac{1}{2}$ hour.

Lieut. Giffard and party returned at 7.30 after a good day's work, having erected a cairn on the highest point of Crozier Island, 6 feet in diameter and $6\frac{1}{2}$ high. Material somewhat difficult to obtain.

Bearings from camp :—

Forenoon Station	271°	30′
Cape Joseph Henry	201	30
Cairn on island..	179	

⊙ Bearing, 0° 37′ 2″
Chron., 11h. 48m. 38s.

In crossing James Ross Bay, I saw no sign of any rupture or crack, except round the shore, which was marked by a slightly raised ridge. We could trace the thickness of the ice down some 8 or 10 feet, and I do not doubt its being much thicker.

Crossed a fox track and two hare tracks.

The land is of loose pebbles and shingle, with patches of vegetation here and there.

Wednesday, April 19th.

Temp. at breakfast + 8°

Seventeenth Journey. 34 days' provisions left. Roused cook at 6.10 A.M.

Good suffering a little as yesterday. Under way at 9.50, and, our road lying down hill, the sledges proceeded in tow of one another. At the bottom each crew took their own sledge, and made slow but steady progress across soft and crusted snow, with occasional hard patches of very fair travelling. Giffard and I walked on, and up a hill about 700 feet high, on the north side of the valley. From its summit we saw what I had already seen yesterday, and Cape Aldrich in the distance. Took some bearings, and a sketch.

Cairn on island	189°	20′
Cape Joseph Henry	202	15
Mount Julia	234	15
Peak over Colan	25	40
North Cooper Key Peak	33	35
Cape Aldrich	35	30

⊙ Bearing, 289°
Chron., 4h. 38m. 26s.

We were as much astonished as pleased (both to a very great extent) to see that the line of hummocks did not approach the coast, between Snow Cliffs and Cape Aldrich, appearing to increase its distance from the coast, as it gets to the westward, passing either against or near to Cape Hecla. Inshore of the heavy ice, or, perhaps, to speak more correctly, the hummocky ice, the travelling seems to be as smooth and as level as a billiard table. To us who had half anticipated and pictured to ourselves a steep coast line, and probably a hummocky route, the sight was most welcome. It was a very fine and clear day for a look out, and as no land appears beyond Cape Aldrich, I am afraid it turns to the southward and westward. Returned to the sledges, which had been getting on single-manned, and had reached the ice again on the west side of Parry Peninsula, in Sail Harbour. The floe which we are now on is much the same as in James Ross Bay, covered with snow to a great depth. The small bight or harbour is protected all round, except to the W.N.W., by two points. It is three-quarters of a mile north and south, and $1\frac{1}{2}$ miles east and west. The South point trends away and

Gable Cliff in Parker Bay, facing W.N.W. (true).

ins a remarkable looking cliff, which we call Gable Cliff, from its resemblance to the able of a house. This cliff forms the side of another arm of the floe, which we could trace ½ to 2 miles to the southward, when it disappears into what looks like a narrow creek.

We crossed Sail Harbour and found the snow much drifted, and exceedingly deep nd troublesome about the north point. Fortunately we had a good, fair, easterly ind, which enabled us to get on single-manned. Having rounded the north point, iffard selected a spot for depositing a 5-day depôt for his return journey, and we mped off it at 6.15 P.M. Depôt was easily buried, the soil breaking up easily into clods f dark hard mud. Temp. — 20° East 1.3

Made good, 2½ miles.
Travelled, 7½ miles.
Marching, 7¾ hours.
Depôt, 1 hour.
Lunch, ½.

The valley through which we crossed the Parry Peninsula is about 3½ miles across, ut from Sail Harbour to an indentation in James Ross Bay is little more than 2½ miles. question if the ice ever breaks up altogether, as the land south of Cape Colan is steep, nd would seem to indicate deep water. Were it to break up there would surely e more hummocks about. Good is much better this evening. We have had a reat failure in the cooking to-night, and the tent is full of tobacco smoke, arising from ipes which have been lit to stave off for a time the desire to get something to eat. he atmosphere is very thick. The east wind prevents the temperature going up ery high. Temp. + 8°

Thursday, April 20th.

Eighteenth Journey. 33 days' provisions left. Roused cook at 5.30 A.M. A cloudy ut fine morning. Misty to seaward. The "Poppie" is 121 lbs. lighter by removing er 5-day depôt. We have not placed anything on in lieu from "Challenger," in the ope that the difference will enable us to get on without double-manning, which is very edious work. Long overall trousers, to fit down over the moccasin, are far preferable o standing tops or gaiters; the latter are very difficult to get the foot-gear out of in a ew days. Under way at 9 A.M. Hoisted the sail. Came over very thick half-an-our after starting. Got sledges on single-manned for a short distance, but were then bliged to revert to the much dreaded double-manning; these floes must be the drift laces for the whole "Unknown Region." We are, in consequence, making but slow rogress, and the men are much done up about the legs. Travelling is wretched. Temp. inside + 20° Air — 15° East, lt air

Temp. — 5° Calm. Fog.

Stopped for lunch at 1.45 P.M. Very warm and comfortable, all but the dense fog, which eeps Giffard and myself fully employed in lining out a straight course by means of taves, which we place in the snow. Cleared a little at 5 P.M. Found we had steered a ery direct course, and were about half-way across to Cape Colan. To the west, and unning about W.S.W., the sun was shining on some fine hills, with an opening to either n inlet or very deep bay.

Camped at 7.15 P.M.
Marching, 9½ hours.
Lunch, ¾ hour.
Made good, 2½ miles.
Travelled, 7½ miles.

Calm, very foggy Temp. — 9°

Cape Hecla	175°	40′
Gable Cliff	254	45
South Point of Opening	328	
Mount Wootton..	347	
Depôt, Sail Harbour	220	20
Cape Colan	38	50

April 21st.

Nineteenth Journey. 32 days' provisions. Roused cook at 5.40 A.M. Under way at 8.55. Travelling being a little better, we continued single-manned till noon, plenty of work for all of us, but far preferable to going back for the second sledge. Cape Colan just distinguishable. Lunch at 1.30 P.M. Single-manned, with "Poppie" as leading sledge for a change. Temp. at breakfast + 24° Air — 17° East, lt. air, misty.

Stubbs (Blacksmith) slightly sprained his ankle. Partially cleared during the afternoon, but not enough to get any extended view down Clements Markham Inlet (the opening to the westward). Passed a few small hummocks during the march, isolated and far apart. Camped at 6.30 P.M.

Temp. − 19°
Tent at tea + 10°

Marching, 9 hours.
Lunch, ½ hour.
Made good, 5½ miles.
Travelled, 5½.

Cape Colan is distant 2½ to 3 miles; between us and it is a low island or peninsula stretching to the northward. The distance across from Sail Harbour to Cape Colan is about 12 or 13 miles. Good is troubled again with diarrhœa, which attacks him suddenly and at all seasons. I gave him a good dose of Gregory's mixture at luncheon, which has done him good, and he is having his supper without pemmican, which food seems to affect him very strangely and persistently.

Placed a bandage on Stubbs' ankle, which is not seriously damaged.

Bearings from camp:—

Cape Hecla	197°	27′
Sail Harbour Depôt	221	45
Gable Cliff	236	45

April 22nd.

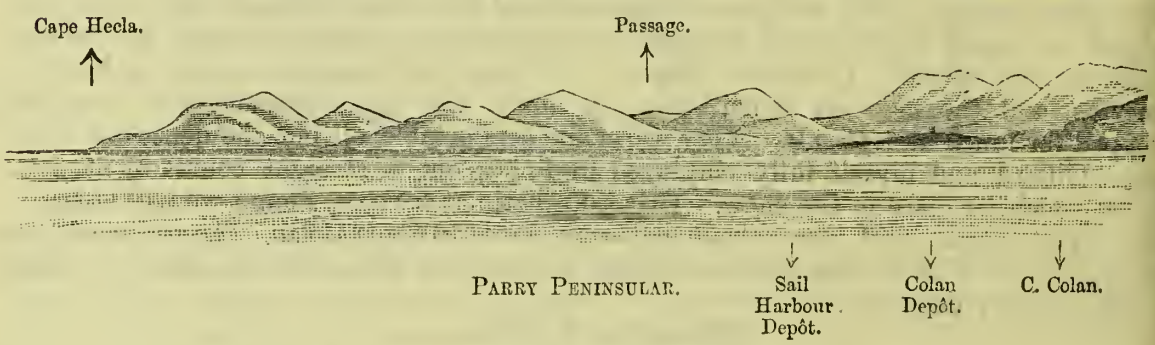
Tent + 14°
Air − 17°
N.W. 2.3, foggy.

Twentieth Journey. 31 days' provisions left. Called cook at 6.30 A.M. Started at 9.30 single-manned, and made good way towards Cape Colan, off which extends a low spit for about three-quarters of a mile, nearly due north, composed of soil and rubble and lumps of limestone. On a brow of this, about 60 feet above the floe, we selected a spot for my eight-day depôt to be forwarded to, the two sledge captains, Giffard and myself, building a cairn to mark the position, while Doidge advanced the sledges double-manned. Very cold work, and a light snowdrift.

Bearings from the cairn:—

Point Stuckberry	38°	30′	
Cape Hecla	200		13 miles.
Sail Harbour	221	15	13 miles.
Gable Cliff	235		
Peak above Colan	327	33	(close).

Sun ⊙ 295°. Chron. 5h. 0m. 36s.



Lunched at 1.30 P.M. Crossed low spit of Cape Colan and steered N.E. ½ N. (compass) for a low point distant about 4 miles (Point Stuckberry). The land west of Cape Colan slopes gradually down from hills of no great height with rounded summits, and forms a slight indentation. We hoped to reach the point before camping, but the moderately good travelling we had been enjoying soon came to an end, and we were plunging into the deep soft snow as much as ever. Giffard and I went ahead and out from the land in the hope of getting on harder snow, but to no purpose, and as we floundered about and picked up each other's steps, trying thereby to save some exertion, my companion remarked that he could not wish his worst enemy anything more abominable than 9 hours per diem of the work for a fortnight. While we were away from the sledge the crews tried single-manning, but gave it up as hopeless. The depth of the snow was such that in double-manning, after the first sledge had been advanced, it took as long walking back for the second load as to advance it a similar distance. The drag-belt supports one in a measure when in the snow, and I have no doubt that lighter sledges could be got along with comparative ease and comfort.

Temp. − 21°
Calm b. c.

Camped at 7.30 P.M., 1½ miles east of Point Stuckberry.

Marching, 9½ hours.
Lunch, ½ hour.
Made good, 4 miles.
Travelled, 12 miles.
Built a cairn.

The hummocks are visible about 3 miles off, and are evidently increasing their distance from the land. From a little way out we obtained a good view of Cape Aldrich, which is about 35 miles off. There are numerous bluffs between us and it, but the land is not nearly so high as it is about Cape Joseph Henry. While camping I dug down, and found the snow to range from 1 to 4½ feet in depth. At the latter depth I came to what I at first thought was land, but which turned out afterwards to be a thin layer or covering of soil or mud lying on top of the hard ice. This may possibly have been washed down from the hills. We are about half a mile from the shore, which, as previously mentioned, slopes very gradually from the ice.

From the great changes in the depth of the snow, the floe would appear to be of a round, hummocky nature, similar to a "Blue Top," and from the absence of hummocks or icebergs probably never breaks up.

Have been using pemmican biscuit for lunch. I think it extremely good, but the men prefer the ordinary article.

Sunday, April 23rd.

Twenty-first Journey. 30 days' provisions. Roused cook at 5.30 A.M. Under way at 8.50 A.M., single-manned, but could scarcely move, even double-manning was quicker. The travelling appears never to improve. The sledge sinks in until brought up by the sledge bottom, which presses hard on the soft surface of the snow. Giffard and myself find plenty of employment hauling the fore part of the runners right and left to help and start the sledge. Tent after breakfast + 12° Air — 14° N.W. lt. air b. c.

Meridian altitude, 30° 19′ 30″. I.E.—2′ 30″. Latitude, 82° 55′ 40″ N.

Lunched with Point Stuckberry nearly abeam. Afterwards Lieut. Giffard and I walked on to Point Moss, about two miles distant, and 400 feet high. Reached the top after three hours' wading!

The coast to this point slopes down from several hills covered in snow, and with numerous ravines; the former appear to run in a ridge from Cape Colan, curving to the westward. In the range are some which reach an elevation of over 2,000 feet, specially two, Mount Disraeli and Mount Gladstone, which are quite 2,500 feet high.

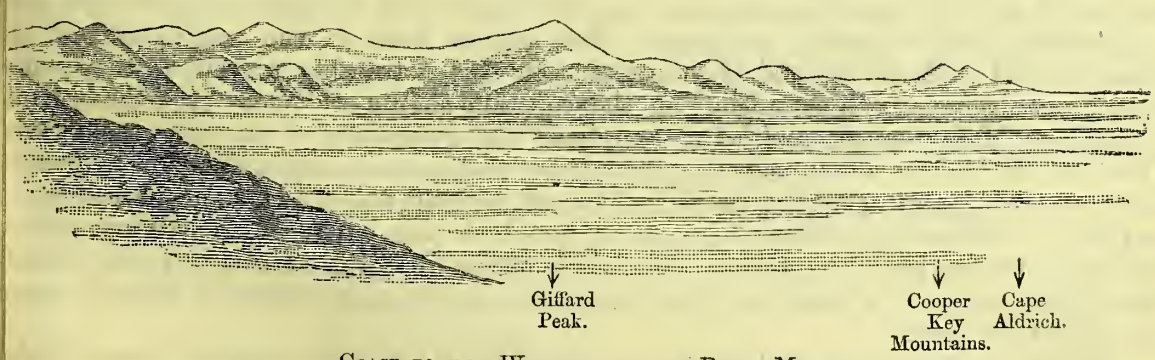
Point Moss bears about W. by N. from Cape Colan, and projects in a N.E. direction from the apparent coast line, which curves inwards round Point Stuckberry.

I have called the coast line "apparent," as it is difficult to determine where the land begins and the ice ends.

We now and again come across a crack, generally about a foot or 18 inches wide; these, as a rule, extend in a north and south direction. We sounded the depth of one to-day, 14 feet, which was rather wider. We could trace snow 10 to 11 feet down, a great deal of which was probably drift.

The top of Point Moss was entirely bare of all vegetation in the few places not covered with snow, and not a track or trace of any animal to be seen.

Sketch from Point Moss looking westward.



COAST TO THE WESTWARD, FROM POINT MOSS.

Reached sledges at 7 P.M., just as a thick fog came on with an easterly wind. Camped about ¾ of a mile east of Point Moss. Temp. — 23° Eastly. 1.3, o. c. f.

Marching, 9 hours.
Lunch, ¾ hour.
Made good, 3 miles.
Travelled, 9 miles.

The sun melted snow on blue comforters to-day. A fine halo round the sun in the afternoon.

April 24th.

Twenty-second Journey. 29 days' provisions. Roused cook at 5.45 A.M. My sledge captain very unwell with diarrhœa; gave him a good dose of Gregory's mixture.

All our cheeks and noses are in a most wonderful condition. There was a good breeze from the east during the night, and now we have a splendid day before us. This is the last whole journey the two sledges make together.

Temp. — 23° East 1.2, b. c. m.

Under way at 9.15. Sheers rigged, and things hung up to dry. Travelling as bad as yesterday. I could thrust my alpenstock 4½ to 5 feet in the snow with the greatest ease.

Passed Point Moss soon after starting. It rises abruptly from a talus or low shelving bank, which extends some 400 yards round outside. Crossed a few cracks, into one of which the leading men disappeared nearly up to their necks.

Steering inshore for Giffard Peak, under which I hope to leave my five-day return depôt.

Meridian Altitude, 39° 57′ 30″. I.E. – 2′ 30″. Latitude, 82° 56′ 30″ N.

Camped at 5.45 P.M. to unpack sledges, &c.

Marching, 8 hours.
Lunch, ½ hour.
Made good, 3 miles.
Travelled, 9 miles.

Temp. — 25°

P.M. sights for time.

Chronometer	7h.	47m.	56s.	34°	40′	10″	I.E. – 2′ 30″
	7	55	22	34	18	20	
	7	57	57	34	10	30	

Bearings from camp:—

Cape Aldrich	N. 40° E.
Point Moss	S. 34 W.
Mount Disraeli	N. 74 W.
Giffard Peak	N. 22 E.
Cape Hecla	S. 25 W.
Mount Gladstone	S. 85 W.

Tuesday, April 25th.

Twenty-third Journey. Finished packing the sledge last night at 7.30 P.M., having on it 31 days' provisions loose, two 40-ration depôts, and one 24-ration depôt, total, 44 days, which, with constant weights, &c., amounts to rather over 1,700 lbs.

Temp. — 23° Calm b. c.

After breakfast received "Poppie's" cooking gear and luncheons, and started at 9 A.M. both crews pulling my sledge.

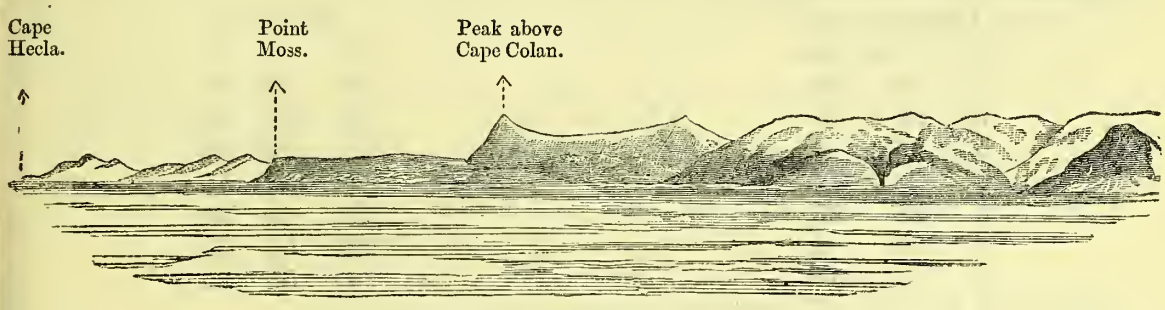
No improvement in the travelling, and the sledge came to a dead stop over and over again in the deep soft snow, and this notwithstanding the desire of all to get as far as possible, before parting company. Had anyone been in the neighbourhood, and unacquainted with the method of progression in this detestable travelling, they would very probably have been astonished at the constant shouts of "One, two, three, haul," varied by "Main topsail, haul," &c., to relieve the monotony of the same "old yarn." However, we had the whole country to ourselves, and were at perfect liberty to expend as much of our breath in shouting as we could spare, without fear of awakening or frightening anybody. Halted for luncheon at noon, up to which time we had been steering inshore to find a place to leave the depôt. The whole of the land was covered in snow, without the slightest sign of a brow or other convenient spot, and we therefore altered course parallel to the coast.

After lunch we proceeded till 4.30 P.M., and then left the "Poppie's" cook behind to make tea ready for his sledgemates by their return. Halted a little after 5 P.M., when after an exchange of hearty cheers and good wishes, Lieut. Giffard and his party took their departure, and left us to our solitary journey. I gave Lieut. Giffard short written instructions relative to my depôt at Cape Colan, and also to the exploration of Clements Markham Inlet, should time admit of it. During our journey together, he and his party most willingly and materially rendered every assistance they could to push the "Challenger" forward, and we thank them heartily for so doing. I

accompanied Giffard part of the way back, while my men pitched the tent, as I intend changing the travelling hours—sun gets too much ahead. The coast between Point Moss and Giffard Peak forms two or three slight indentations, the latter about W. by N. from the former 6 or 7 miles. There are several deep ravines running from hills between 700 and 2,000 feet high. These hills do not appear to range in any particular direction. With the exception of the top of Point Moss and a protruding patch here and there on the face of a cliff, all is thickly covered in snow. Giffard Peak rises somewhat abruptly from the ice on its eastern side, and attains an altitude of quite 1,800 feet.

Temp. camping −17°
Calm b. c.
Tent after tea + 21°

Good still suffering from slight diarrhœa. He is also a little touched with snow blindness, and uses sugar of lead lotion. Condensation was running down inside the tent at breakfast this morning.



Coast looking ESE. (true).

Clouds this evening in the S.W., and a slight parhelion.

Bearings from camp :—

Cape Hecla	206°	30′
Point Moss	209	20
Peak over Colan	223	5
Giffard Peak..	17	55
North Cooper Key Peak ..	38	15

Sun, 8° 30′. Chron. 4h. 23m. 0s.
Marching, 6½ hours.
Lunch 1½.
Made good, 3½ miles.
Travelled 3½ miles.

Wednesday, April 26th.

Twenty-fourth Journey. Placed the extra coverlet underneath us last night, and derived great comfort from it, as it prevented the cold striking upward with such intensity as we had been accustomed to.

Forty-three days' provisions in sledge. Roused cook at 3.30 A.M. I felt half inclined last night to leave some of my provisions on the ice, but on thinking it over, I think I shall gain more by advancing half loads, the more so, as to get along at present we should be obliged to lighten the sledge to such an extent as would probably very much shorten the journey. I therefore equalised the two loads as nearly as possible, keeping the foremost half rather the lighter for clearing the road. Under way at 6.40; advanced till 8.15; unpacked and back for second load, by the arrival of which I had cooked the lunch. Made a similar fleet after lunch, very slow and tedious work; travelling abominable, and walking back as bad as advancing.

Tent + 30°
Air — 21
Calm b. c.

Meridian altitude, 41° 12′ 10″. I.E. −2′ 30″. Latitude, 82° 58′ 50″ N.

Camped at 4.45 P.M.

Marching, 9 hours.
Lunch, 1 hour.
Hours advancing, 5¾.
Packing &c., and returning with empty sledge, 3¼.
Whole load advanced, 3¼ hours.
Made good, N.W. by W. ½ W. 2½′.
Travelled, 7½ miles.

Temp. — 10°
Calm b. c.

Good and Doidge with slight diarrhœa. The former has been obliged to wear an eye shade during the march. The men are all very much done up, the fact being that, light loads or heavy loads, this thick snow takes it out of one tremendously, and the constant standing pulls shake one to pieces.

Clouds have come up from the S.W. in the form of a hazy nimbus, with white stratus above. Unable to take sights in consequence.

Thursday, April 27th.

Tent + 33°
Air − 14°
Sun + 30°
N.W. Lt. air b. c.

Twenty-fifth Journey. 42 days' provisions. Roused cook at 3.30 A.M. The tent very warm during the night, which made some of us open up sleeping bags.

The men very sleepy, not having recovered from yesterday. Some of them dropped off asleep at breakfast. Started half load at 6.30.

Sights for time at 6.30 A.M. :—

Chronometer.				Altitude.		
5h.	18m.	30s.		29°	9′	10″
5	20	15		29	16	40
5	21	35	I.E. −2′ 30″	29	20	30
5	25	2		29	33	20
5	26	42		29	39	50
5	28	27		29	46	30
5	30	8		29	52	20
5	31	54		29	58	20

Longitude, 67° 54′ 00″ west.

Bearings :—

Giffard Peak	N. 13° E. ..	3 miles.
Peak above Colan ..	N. 220 E. ..	12 to 14 miles.

After sights I walked in to the land; found nothing but deep snow in every direction. Met the sledge on its way back. Cooked lunch. The air very cold, and sun very warm.

The thermometer hanging on my chest .. .. — 12°.
,, ,, ,, back .. .. + 30.

Half our daily journey is necessarily done with the sun in our faces, causing a few cases of snow blindness, but very slight.

Meridian altitude, 41° 47′ 54″. I.E. −2′ 30″. Latitude, 82° 59′ 32″ N., about $1\frac{1}{2}$ miles N.W. by W. $\frac{1}{2}$ W. of last camp.

The double journeys are most discouraging to the men, and their looks of disappointment when, after 9 hours' labour, they find themselves only $2\frac{1}{2}$ to 3 miles from where they started, show how much more they would do if they could.

During the afternoon I attached my alpenstock and the compass tripod, one to each end of the lead line; the drift between them was exactly 19 yards. With this I measured the distance travelled during the afternoon journey. It was rather a tedious process, and gave 2,033 yards as the result of $1\frac{1}{2}$ hours' advance, or about 1,400 yards an hour. This, when divided by 3 for bringing up the second load, packing, &c., gives our actual rate of progress at about $\frac{1}{4}$ of a mile an hour. Camped at 4.30 P.M.

Marching, 9 hours.
Lunch, 1 hour.
Whole load advanced, $3\frac{1}{4}$ hours.
Packing, unpacking, $1\frac{1}{2}$ hours.
Returning with empty sledges, 2 hours.
Second loads advancing, $2\frac{1}{4}$ hours.
Made good, N.W. by W. $\frac{1}{2}$ W. 4′.
Travelled, 12 miles.

Observed a fox track.

Good is much better; Doidge not so, gave him a dose of Gregory's mixture.

Sat in duffle coats at supper; no condensation formed on them. Foot gear came off quite easily, and the coverlet improved and much more pliable.

Friday, April 28th.

Tent + 33° + 37°
Air − 15°
Calm, h. o.

Twenty-sixth Journey. 41 days' provisions. Roused cook at 3.25 A.M. Placed a new wick in the spirit lamp for the first time since leaving the ship.

Sledge started at 5.50 A.M.

⊙ bearing, N. 188° 20′ E. Chronometer, 4h. 26m. 20s. Variation = 102° 58′ west.

Bearings :—

Peak over Colan	N. 226° 50′ E.
North Cooper Key Peak	N. 37 35 E.
Giffard Peak	N. 287 30 E.
Point Challenger	N. 26 35 E.

Thirst begins to be felt a great deal, and the water bottles are in constant requisition ; this has not hitherto been the case to any extent. A moderately high range of hills extends in a southerly direction from Cape Aldrich, while to the northward is a low spit, similar to Cape Colan. Temp. in sun at 8 a.m. + 5°

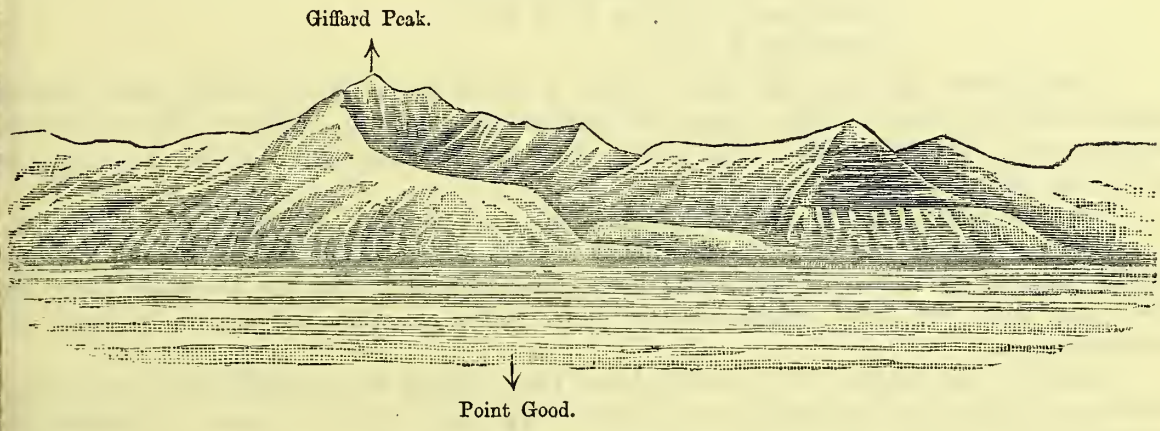
Good took a great deal of trouble in trimming the spirit lamp last night, for our tea takes a long time boiling at lunch. To-day we managed it in 57 minutes; the pint of spirits burnt out in 65 minutes. This is a trial under favourable circumstances, and 25 days from the ship. A halo round the sun, and a great deal of mirage to the westward.

Meridian altitude, 42° 23′ 20″. I.E. — 2′ 15″. Latitude, 83° 0′ 30″ N., about $1\frac{1}{2}$ miles from the last camp.

We are therefore across the 83rd parallel at last! Camped at 4.15 P.M.

The snow has been a little less deep, and we are looking for a favourable change.

Marching, 9 hours.
Lunch, $\frac{3}{4}$ hour.
Whole load advanced, 3h. 40m.
Returning with empty, 1h. 50m.
Packing, unpacking, &c., 1h. 10m.
Advancing second loads, 2h. 20m.
Made good, N.W. by W. $\frac{1}{2}$ W. 3′.
Travelled, 9 miles.



THE ARM CHAIR.

The N.W. face of Giffard Peak is a precipice; and, with hills on either side, forms something like a chair. The coast from Point Good takes a curve inwards, and forms a small bay (Doidge Bay), about $1\frac{1}{2}$ miles deep, and 2 or $2\frac{1}{2}$ miles across to Point Challenger.

The afternoon's journey has opened out a sloping snow plain between Cooper Key Peaks and the hills to the southward.

The line of hummocks is visible $3\frac{1}{2}$ to 4 miles distant. Our travelling looks so very level and easy, that it makes it all the more annoying to creep along so slowly.

Saturday, April 29th.

Twenty-seventh Journey. 40 days' provisions. Roused cook at 3.25 A.M. Air — 15°
Sledge started, half load, at 5.45. Calm b. c.

A great deal of mirage to the N.W.; its effects in some places led us to think there were very extensive pools of water out on the heavy floes. It required careful watching for some minutes to dispel the illusion.

Sights for time (camp of 28th April) :—

4h.	45m.	34s.	28°	11′	10″.	I.E. – 2′ 30″.
4	48	17	28	21	10	
4	51	13	28	31	40	
4	53	56	28	40	50	
4	57	35	28	54	40	Longitude 68° 51′ 15″ W.
5	0	0	29	3	20	
5	1	22	29	8	10	
5	2	36	29	12	40	
5	3	45	29	16	50	Longitude 68° 54′ 15″ W.

Temp. in duffle exposed to sun 11 a.m. + 41°

A light air sprang up from the eastward, and temperature rose to – 8°.

Meridian altitude: 42° 57′ 30″. I.E. – 2′ 30″. Latitude 83° 2′ 0″ N.

Camped at 4.30 P.M.

Bearings :—

Cape Aldrich	41°	20′
Point Wood	354	
Giffard Peak	241	15
Cape Hecla	218	
North Cooper Key Peak	35	15
Point Challenger	283	45
High hill west of Giffard Peak	260.	

Marching, 10 hours.
Lunch, $\frac{3}{4}$ hour.
Whole load advanced, $3\frac{1}{2}$ hours.
Packing, unpacking, &c., $1\frac{1}{2}$ hours.
Returning with empty sledge, 2h. 5m.
Advancing second loads, 2h. 50m.
Made good, N.W. by W. $\frac{1}{2}$ W. 3′.
Travelled, 9 miles.

I dug down through the snow, which I found to be exactly 4 feet deep, getting much harder and more compact below the surface than before. Between it and the ice was a space of over 2 inches. The latter gave me the impression of being young, and not of the blue-topped description.

Lines of sastrugi N.W. and S.E., which is about parallel to the line of hummocks.

The surface of the snow is far more ruffled as we near the cape, and it would almost appear as if the S.W. winds have no effect in hardening the snow along the coast, and that the N.W. winds do not blow home except close to the extreme and outside capes.

N.W. 5.6, b. c. q.

Some of the higher hills to-day have been tipped occasionally with small white clouds; the first one I saw led me to believe it was smoke from a volcano. Towards the afternoon, however, they became more general, and at 6.40 P.M., while we were at supper a strong wind set in from the N.W. which lasted 4 or 5 hours.

"Spliced the main-brace," in honour of crossing the 83rd parallel, and drank "Success to the Northern Division."

Some cooks are apt to play curious, but inconvenient, pranks at the beginning of a journey. Our kettle leaked to-day; on examining it I found a small hole, and farther enquiry elicited information that the cocoa had given some trouble in dissolving and that the point of a knife had been used to overcome its scruples. Fortunately the Blacksmith (Stubbs) was able to tinker it up again all right.

Temperature rose to + 40° on the sunny side of the tent inside. Positive luxury

Sunday, April 30th.

Tent + 27°
Shade + 4°
Sun + 14°
Calm, light snow, and foggy.

Twenty-eighth Journey. 39 days' provisions left. Roused cook at 4.20 A.M. The cook quite eclipsed himself, time and quality both improved. Theories are started as to the proper way of cooking; I am informed that turning the spout of the condenser to windward exercises a very beneficial effect in the quantity of water made therein. Scarcely any condensation, bags and coverlet in perfect order.

The N.W. wind died away in the night.

Started at 6.50 A.M. with the whole load. The sledge does not appear to get much lighter; I suspect the increase in weight of robes and bags, &c. (small as it is as compared with autumn travelling), fully compensates for the provisions consumed to the present and that it is as heavy, if not heavier, than when we left the ship. However, we all

North Cape Ice Pack
Cape Columbia
Ice Cliff
(See also Journal May 12th)

ulled with a will, and were encouraged by the travelling improving at every step nearly, across hard snow and sastrugi, with 6 to 7 inches of loose soft stuff on top, and occasional deep patches.

About 9.0 A.M. a N.W. wind, force 3.5, came down and cleared off the fog. N.W. 3.5, b. c.

Halted for lunch at 10.0 A.M. under the lee of the sledge, and found it preciously cold work waiting, but everyone is willing to go through any amount of discomfort rather than lose the pannikin of hot tea, and it exercises a marked improvement on the party.

While dragging I amused myself counting our paces taken during half-hour intervals. The mean of three or four observations gave a few over 2,000, the average pace being 15 or 16 inches, our speed is about 1,650 yards an hour, which although very hard work, is so much an improvement on what we have been accustomed to, that no one appears to feel or care about it.

Camped at 3.30 P.M.
Marching, $5\frac{3}{4}$ hours. Temp. + 8°
Lunch, $1\frac{1}{2}$ hours. N.W. 3.5, o. f.
Made good and travelled, $3\frac{1}{2}'$ N.W. by W. $\frac{1}{2}$ W.

This was a short march, partly on account of shifting our travelling hours still farther into night travelling, and partly on account of its being Sunday. I have always intended making some distinction in the days' work, but hitherto our journeys have been so short, I have not felt justified in doing so. My men are all in capital spirits; the improved travelling, the warmer weather, and prospects of getting on, all tending to a rapid rise in the "Social Barometer," which, in our small community, is as desirable as welcome.

Read the Evening Service after supper.

The Sergeant-Major has just shown me a very ugly looking red patch or blotch inside just above the ankle, which extends some 8 inches in length, and 2 or 3 in width. There is no irritation or soreness, but the limb is slightly swollen. I have recommended him not to tie his foot gear on so taut, as I fancy he has been lacing himself too much. No other complaints. Appetites good, but the full allowance of pemmican is not eaten except by a few of us.

Monday, May 1st.

Twenty-ninth Journey. 38 days' provisions. Roused cook at 12.30 midnight. Temp + 10°
Wind strong from the N.W. with drift.

The pleasure (?) of having a man dancing on you when brushing down condensation was dispensed with this morning, there being none to brush down. Under way at 1.20 A.M., got abreast Cape Aldrich at 4 A.M., and then steered for a bare patch on the brow of the low spit which runs off the cape, and nearly due north of it, and reached the foot of the ascent at 5.20 A.M. Unpacked sledge, and placed on it one 40-ration and one 24-ration depôt, the extra coverlet, spare duck boots, and sealskin caps. This leaves me with 30 days' provisions to carry on, which is sufficient to advance us till the 7th May, 45 days out.

Found some difficulty in securing the depôt, as there was not a stone to be had; the ground was very hard, and composed of soil and very small shingle, with here and there a thin covering of ice, probably caused by the snow melting in the sun and freezing again before it could sink into the hard frozen ground. On this mixture the pickaxe made but very little impression, and it took four of us, working in spells, $2\frac{1}{2}$ hours to get a hole 10 inches in depth and large enough to place the bottom of the gutta-percha case in, wrapped up in extra coverlet. Filled in with the earth, and placed pemmican and bacon, with the 3-day depôt (packed in potato tin) on top, completed shortly after 8 A.M. "Tobogganed" down the hill on the empty sledge, packed sledge, lunched, and started at 9.15, being lighter by about 300 lbs. We were not at all sorry to get under way again, securing the depôt was too cool to be pleasant. Wind, force 5.6, from the N.W., and a cutting drift. We now had a very heavy drag up the low spit, which extends from Cape Aldrich for $1\frac{1}{2}$ to 2 miles from the northward, and curves to the eastward. We reached the top at at 11 A.M., and were disappointed to find we could only see land miles ahead, bearing about W. by N., and terminating in a bold high cape, since named by Capt. Nares "Cape Columbia," and which proved to be the most northern point. The sledge now proceeded down the hill on its way to Cape Columbia, while I remained and took bearings, sketches, and meridian altitude.

Meridian altitude, 44° 2′ 30″. I.E. —2′ 15″. Latitude, 83° 6′ 9″ N.

Bearings :—

North Cooper Key Peak, ...	N. 4°	0′ E.	3 miles.
Cape Aldrich	239	50	
Cape Columbia	21	30	2½ miles.
Giffard Peak	229	50	

Fortunately the wind was nearly all gone ; the sights were very good.

Cape Aldrich is very steep, and some 700 to 800 feet high ; from it the coast line runs about W. by N., ½ N. in tolerably steep cliffs covered in snow, for about 5 miles, when it again rises to 800 feet, and terminates in an almost perpendicular cape, the most northern point of my journey. At the foot of the cliffs is low shelving land, about 100 feet high, 1½ miles across, and extends to the northward 1½ to 2 miles, its extremity curving round to the eastward and ending in a low sickle point, which is slightly raised before tapering to the floe. On this rise is our depôt, from which Cape Aldrich bears W. by N. by compass. Walked on and overtook the sledge. It is advisable to keep one's mitts handy ; mine had been carried on, and my stay on the ridge was not so pleasant on account of it.

Travelling across hard sastrugi (which ran more in line with the land) and patches of level snow, as hard, and nearly as slippery as ice. Over this we flew along, and the social barometer rose as rapidly as ever it did on a good lead opening up north for the ship, on her way up Smith Sound.

As we drew near Cape Columbia we opened out a conical hill, having the appearance of an island, distant about 30 miles, and immediately afterwards a succession of capes or bluffs. The former was in transit with Cape Columbia N. 16° E. by compass, the extreme of the latter N. 15° E., and about 20 miles off ; so that the coast line runs as nearly due west as possible.

The hummocks continue to the N.W., and get farther from the land, but close off Cape Columbia (about 100 yards) the ice is of the older type, but has been merely pressed up against the fringe of loose stone and rubble which surrounds the cape, without being broken into hummocks, but leaving large cracks and fractures. Inside the fringe above mentioned, is a sheet of hard and perfectly smooth ice, but lasting only a very short distance.

We reached the cape at 3 P.M., and camped on the old floe, just outside of the cracks.

Marching, 7¼ hours.
Securing depôt, 2¾ hours.
Lunch, 1 hour.
Made good and travelled, 5½ miles.

On camping I walked to the cape, and found a hard snow drift, about 12 feet deep, close round its foot. Large masses of rock protruded from the snow on the cliff in places (a few specimens of which I procured on my return journey), and although there appeared little to guide an observer unskilled in geology, the whole cape seemed as if hove over from the westward towards the east, or perhaps W.N.W. to E.S.E. The slope of the cliff was very steep, and the dip of the strata between 35° and 40°.

From observation to-day I place the cape in Latitude 83° 7′ N., Longitude 70° 10′ W.

There was a very brilliant parhelion, lasting for about an hour, during the afternoon. It consisted of a horizontal white, but hazy looking belt, which reached nearly three-quarters of the way round the heavens ; in it were situated four luminous patches of prismatic colours, or mock suns. The angle, measured by sextant, between those nearest the true sun was 46°, one of the former being 23° on either side of the latter. The more distant ones, very much fainter, were at an angle of 105° on either side of the true sun.

Right above, and curved upwards, or away from the true sun, was a most brilliant arc of prismatic colours ; about 80 or 90 degrees of it only visible. The colours were most vivid, the red being nearest the sun, on the outer edge of the arc, the angle between the most adjacent portion of which and the true sun was 46° (?). In the luminous patches the red colour was invariably nearest the sun.

As the weather gives every promise of being fine, I intend remaining off Cape Columbia to-morrow, and ascending North Cooper Key Peak, from which we shall get a splendid view. The whole crew are so anxious to come, I told them to draw lots for one to remain with the tent ; poor Doidge is much down on his luck, having been "elected" to stay behind.

The Sergeant-Major's leg still gives him no pain, but the angry red colour has

spread nearly to his thigh; I do not like the look of it at all. I have given him turpentine liniment to rub in, which he uses with a will.

Tuesday, May 2nd.

Thirtieth Journey. 30 days' provisions. Roused cook 12.30 (midt.). Turned out and had a look at the weather. Fine bright sun and a light but sharp westerly wind. During breakfast a fog bank appeared on the N.W. horizon, and it clouded over; the wind increased, and half-an-hour after the increasing mist rendered any attempt to go up the peak useless. We were all very disappointed, but we could not afford time to wait for the chance of a clear. Under way at 3.20 A.M.

After travelling a short distance over the old ice (covered with level but spongy looking snow) to clear a low mound of snow and *débris* of stones which lay in our path, we recrossed the various cracks, and got on to excellent ice some 40 or 50 yards broad, over which the sledge followed me at a rate of between 2 and 3 miles an hour. This, however, only lasted half a mile, when we came to a moderately hard sastrugi (running parallel to the land) with a little soft snow on top. By this time the fog had come down and rendered all things and everything of no colour. I was about 2 miles ahead of the sledge, but could see nothing and do nothing, so turned back and sought refuge in the drag-belt and company of my sledge crew. Halted for lunch at 7.40 A.M. Wind gone down a little. Stopping for luncheon is a very serious delay when working whole loads, but everyone looks forward to the pannikin of tea and the bacon more than any meal during the 24 hours, and the men appear far better up to work after it than at any other time.

Tent + 22°
Air − 10°
West 3.4, o. c. m. at starting.

Temp. − 10°
West 3.4, o. c. m.

The afternoon watch was in a dense fog.

Steered by sastrugi, which I had observed ran directly *from* the point for which we wanted to shape a course about N. by E. ½ E. (compass). With a very little care this plan answered admirably, and enabled us to go on knowing we were losing no ground. Camped at 2 P.M.

Marching, 9 hours.
Lunch, 1¾ hours.
Made good, 8 miles.
Travelled, 8 miles.

The coast, after rounding Cape Columbia, appears moderately steep, from 400 to 600 feet high, and broken up into indentations or bays for some 20 miles. About a mile west of Cape Columbia is a very steep and bold bluff, which is the northern termination of the slope from North Cooper Key Peak, the summit of which peak is between 1,800 and 2,000 feet high, and 1¼ miles S.S.W. of the bluff. About 1½ miles farther to the westward is a steep bluff about 800 feet high, which runs gradually up to South Cooper Key Peak, 1,700 to 1,800 feet high, and S.S.W. about 1½ miles. I forgot to remark yesterday that to the east of Cape Columbia, about 2½ miles from it, and about 200 feet above the ice level, the snow appears to have fallen or slipped, leaving a perpendicular wall some hundreds of yards in length, and of considerable height. I at first thought it was a tremendous snowdrift; originally, perhaps, it may have been, but now it is either compressed snow or a bluish ice, and resembles a face of a glacier. Our spirit lamp gave us a little trouble to-day, we could not unscrew the top. This is caused by screwing it up while the lamp is warm, as we never had any difficulty otherwise. Our endeavours to have it unscrewed led me to observe the inconvenience of having the burner plate and lid to screw up the same way, as on this occasion, directly any force was applied, the former came out, not the latter. Then, again, if the former ever gets jambed, the latter may be of no assistance in unscrewing it when wanted, and the want of something leads to the use of burners as levers or something to get a purchase against, which very quickly breaks the cement, &c. They would be improved by either screwing them up in different directions, or by providing a catch to lock the two together when required. We ultimately got our's unscrewed by warming it over the stearine lamp.

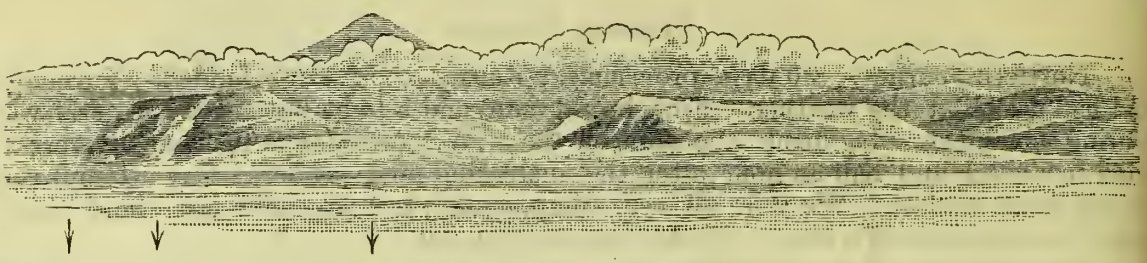
Temp − 4°
West, 1.2 o. f.

Wednesday, May 3rd.

Thirty-first Journey. 29 days' provisions. Roused cook at 12.30 (midnight). Very poor breakfast made, cooks having used the 5 days' allowance of pepper and salt in 4 days. Their absence makes a vast difference in the pemmican. Under way at 3.30 P.M., steering by sastrugi. Travelling much as yesterday, all of us pulling, and doing about a mile an hour; 1,000 paces in 13 minutes, and rather longer than those of the other day. The sun made a violent struggle, and we saw him shining on the foot of some hills, but he

Tent + 17°
Calm, thick fog.

soon gave up the attempt, and down came the fog thicker than ever. About 7 A.M. passed a cape which I think is the western extremity of an indentation or bay extending from the bluff. The land for 4 or 5 miles is comparatively low, and then rises to gabel-



shaped cliffs. These terminate in a low point, round which may be a small inlet, it appeared like it, but the weather is against seeing very much. The low point is in transit with Cape Nares, north and south, about 4 miles apart. The distance from the bluff to Cape Nares is 7 to 8 miles. Beyond the latter cape I saw very little, the land appeared tolerably steep and high for a mile or so, and I then lost all trace of it. Following the lines of sastrugi we have travelled parallel to the land, along the foot of which is a great quantity of *débris* and rubble similar to that round Cape Columbia. The travelling very good except occasional deep hard ruts, which caused heavy standing pulls, and were not at all good for the runners.

Marching, 9 hours.
Lunch, $1\frac{1}{4}$ hours.
Made good and travelled, 9 miles, N. by E. $\frac{1}{2}$ E. (comp.)

Sergeant-Major's leg much the same, no other sickness or complaint.

Thursday, May 4th.

Temp. — 5°
East 1.2, o. f.

Thirty-second Journey. 28 days' provisions. Roused cook at 1.5 A.M. Under way at 4.0 A.M. Made sail, which pulled about its own weight. Sights for time about 6.30 A.M. :—

4h.	29m.	9s.	28°	36′	50″	I.E. – 2′ 30″.
4	31	27	28	45	20	
4	34	54	28	56	10	
4	38	36	29	11	10	
4	40	16	92	17	30	
4	41	43	29	21	40	
4	43	10	29	27	40	

Tent + 20°
Air — 10°
East 1.2, fog.

Halted for luncheon at 8.40. Very foggy, but I just caught the loom of land bearing N. by W. $\frac{1}{2}$ W. (comp.), W.S.W. (true). What we have hitherto passed to-day I am sure I cannot say. Wind died away during luncheon, after which we steered north (comp.), W. $\frac{1}{2}$ S. (true), for a low mound or islet, and when within a short distance of it, altered to N.N.W. $\frac{1}{2}$ W. (comp.), land having opened out in that direction (about S.W. by W. true). I imagine we are up to the extreme cape, which we saw from Cape Columbia, having travelled nearly 20 miles. The conical island should be on our starboard bow. The fog partially lifted and we saw the bottom of land, N. 31° W. (comp.), 10 or 12 miles distant, which I determined to steer for to-morrow. Camped at 2.30 P.M., having come across some wretchedly bad travelling after rounding Cape Albert Edward with very soft and deep snow. I counted and measured paces several times during the day, the speed over the ordinary travelling about 2,000 yards an hour.

Marching, 9 hours.
Lunch, $1\frac{1}{4}$,,

Made good { N. by E. $\frac{1}{2}$ E. $4\frac{1}{2}$′ miles.
North $1\frac{1}{2}$,,
N.N.W. $\frac{1}{2}$ W. $1\frac{1}{2}$,,

Travelled, $7\frac{1}{2}$ miles

Temp. — 9°
West 2.3, o. f.

On measuring biscuit to-night, we found $1\frac{1}{2}$ days' allowance rather mouldy. I think it was some which had been overlooked and put in the sledge without being actually seen, though I imagined I had had a good and careful look at all of it. In addition to this we have lost somewhat by dust filtering through the bread bags. Have reduced allowance from 14 oz. to 12 oz. per man per diem.

Friday, May 5th.

Thirty-third Journey. 27 days' provisions. Roused cook at 1.30 A.M. Spent a sleepless night; the fogs have rendered my eyes very weak and painful; the rest of the party are quite free from any sign of snow blindness. The men would prefer an increased ration of bread and less pemmican, of the latter we have saved 56 lbs. since leaving the ship. Under way at 4.30 A.M.

Steered N.N.W. ½ W. (comp.) in soft deep snow, and dense fog through which we advanced by standing pulls, or a very few yards without one. The whole was crusted over in such a manner as just not to bear you, but let you in suddenly up to your knees, and rendered the extrication of your feet somewhat difficult, unless you pulled them out exactly in the same way they had broken through. Temp. − 9° S.W. 2.3, foggy.

Finding the travelling so bad, halted for lunch, in the hope of its clearing. While tea was cooking, I floundered in various directions trying to get a sounder road, and suddenly found myself slipping down an incline of hard snow, with accelerating velocity and much against my will, not knowing exactly where or how I might bring up. In this my alpenstock assisted me, and I recovered 15 to 20 feet I had come down, rather glad to be where I started from. We must have been dragging up hill all the morning without knowing it, and the slide I had, made me very careful about our afternoon travelling, as the sledge would undoubtedly have charged over us, had we come to a similar descent.

During lunch I caught a glimpse of land, N.N.E. (comp.), and knowing the island must be yet east of that, I concluded we had been steering into a bay, so started off on the N.N.E. course.

I proceeded ahead to feel the way, progress very slow at first, but the travelling improved as we got on. It partially cleared during the afternoon, and I found there were a series of ridges extending from the land in a N.W. direction (true), over the steep side of one (about 35 feet high) I had slid down, and along the top of which we gradually got clear of the land, and found better travelling. I dug down on the ridge, found 3 to 4 feet of soft snow, and then came to hard ice.

Camped at 2.30 p.m. Air − 5° S.W. 2.3, o. f.
Marching, 8¾ hours.
Lunch, 1¼.
Made good, 5 miles.
Travelled, 6½ miles.

No alteration in appearance or condition of Sergeant Wood's leg. No sickness.

Saturday, May 6th.

Thirty-fourth Journey. 26 days' provisions. Roused cook at 1 A.M. Weather very thick at starting, but cleared off somewhat a short time afterwards.

Under way at 4.30 A.M., steering N.N.E. until it cleared sufficiently to make out a passage N. by E. ½ E. (comp.) between Ward Hunt Island and the main land. Travelling very good over hard snow, which I dug through to find ice about 18 inches below the surface.

Sights for time :—

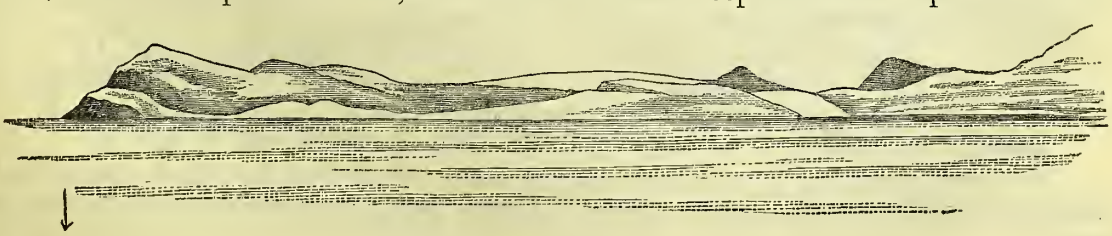
4h.	48m.	0s.	30°	30′	40″	I.E.—2′ 30″
4	51	4	30	41	10	
4	55	55	30	59	50	

⊙ Bearing S. 14° 50′ W. Chron., 4h. 58m. 0s.

Halted for lunch at 9 A.M., and marched afterwards till 3 P.M., when we camped. Misty over the hills and in the valleys.

All hands are thoroughly enjoying the novel sensation of warmth without working. Temp. − 5° Calm b. c.

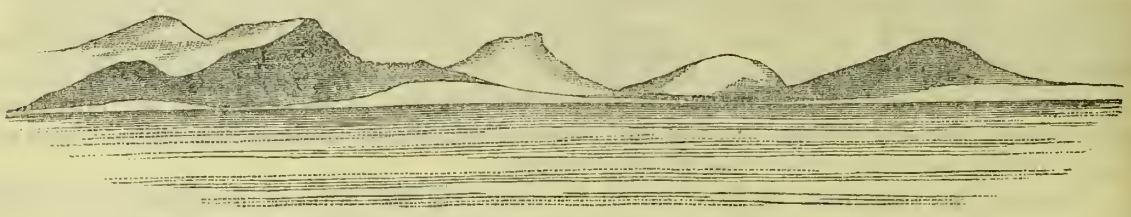
In the tent on the sunny side temperature is + 52°. Of Disraeli Bay I have not seen very much, but it may be said to extend for some 25 miles from Cape Albert Edward, across to Cape Alexandra, and about 10 miles deep in its S.E. part. Several



Cape Albert Edward.

East Coast of Disraeli Bay.

low ridges from 30 to 40 feet high, and varying from a few hundred yards to about a mile in length, show up in front of the cliffs. Their general direction being S.E. and N.W., hence on the east coast of the bay they extend at, or nearly at, right angles from the land, while to the south-westward they are nearly parallel with it. I imagine these ridges are composed of hard ice under the snow, though I had no means of penetrating



Disraeli Bay and Ice Rollers or Ridges.

it any depth to find whether or no land lay underneath. About half way across the bay, and 3½ miles north of its nearest point, lies an island, Ward Hunt; its eastern extreme low and shelving, and the western terminating in a steep bluff about 150 to 200 feet high.

From the ice on its south side, the land rises gradually at first, and then at a steep slope to a height of 900 or 1,000 feet, having the appearance of a conical hill from the eastward.

In passing between the island and the main land, we crossed a ridge about 30 feet high, and ½ a mile in width, which runs quite a mile from about the middle of the south shore of the former. Thinking it was land, I dug down through 2½ feet of snow, and came to ice. Similar looking ridges extend to the eastward and westward of the island.

Bearings from camp :—

Cape Alexandra	N. 16° E.
West extreme of island	N. 157 E.
Cone of island	N. 164 E.

The Sergeant's leg looks better, the discolouration is not so great.

Calm b. c.
Air – 5°

Made good and travelled, N. by E. ½ E., 9 miles.
Marching, 9 hours.
Lunch, 1½ hours.

Sunday, May 7th.

Tent + 15°
East 1.2, b.c.
Air – 6°

Thirty-fifth Journey. 25 days' provisions. Roused cook at 1.20 A.M. Read the Morning Service before starting.

Under way at 5.15 A.M. Made sail.

Travelling very good, the same as yesterday; but a good many of the men very stiff about the legs at starting, which made our progress slow.

Westy. 2.3, b. c.
Air – 6°

Halted for lunch at 9.15. Wind shifted to the westward; shortened sail.

Exceedingly chilly waiting for lunch.

Exceedingly comfortable after hot tea and bacon. Camped at 2 P.M., being Sunday, and I think the men require a little easing.

Tent at supper
+ 38°

Made good, N. by E. ½ E. (comp.) 7½ miles.
Marching, 7¼ hours.
Lunch, 1¼.

Sights for time about 2 miles from camp of yesterday :—

5h.	43m.	37s.	34° 10′ 10″	I.E. – 2′ 30″
5	45	37	34 17 20	
5	47	30	34 23 40	
5	49	14	34 29 40	
5	52	46	34 42 40	

⊙ Bearing N. 212° E. Chron., 6h. 3m. 0s.

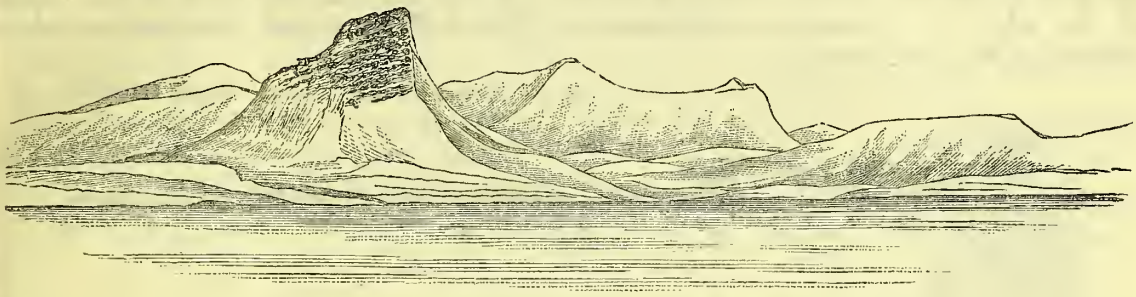
Bearings at same time :—

West extreme of Island	175° 15′
Cape Albert Edward	N. 200 10 E.
Ram Bow Hill, by Cape Alexandra	N. 14 30 E.

Meridian Altitnde, 47° 34′ 50″. I.E. – 2′ 10″. Latitude, 83° 2′ 45″ N.

The land is getting lower; hills ranging from 400 to 800 feet high rise behind low gable-shaped cliffs, with numerous ravines between them running into the bay. Plenty of snow.

Have been steering all day for Cape Alexandra, which has either low land, or an ice wave off it. A little east of the Cape is a very peculiar hill, with an angular face to the N.W., resembling the ram bow of an iron clad. It is about 800 feet



"Ram Bow Hill" Faces about NNW. (true).

high; its summit composed of very hard, dark-looking stone, below which is a steep sloping talus, down to the ice. We are camped about 1 mile north of it, having failed in reaching Cape Alexandra, as I had hoped to do. The latter was much farther than I had anticipated. Crossed a fox track and a few lemming tracks to-day. These are the only signs of life we have come across for a long time. The land is entirely covered in snow, except a few bare places on the face of the cliffs.

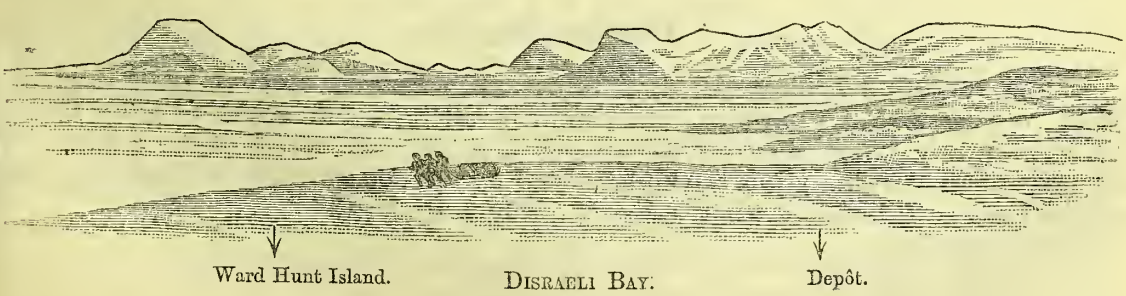
The health of the crew is very good, except stiff legs, which are pretty general, and only to be expected. The two worst are the Serjeant-Major and Doidge, whose legs are a great deal swollen and puffy-looking. The vivid colouring, however, is not so great as it was, and in the latter case there is no discolouration at all, except a nasty appearance about the veins. They both use turpentine liniment.

The cork worked out of the glycerine bottle, which emptied its contents into the Serjeant-Major's pocket, while I suffered in a similar way from a like catastrophe happening to the sugar of lead lotion. Some better means might, perhaps, be adopted for carrying medicines, &c., of this description, which are constantly required, and, to remain thawed, must be carried on the person.

Monday, May 8th.

Thirty-sixth Journey. 24 days' provisions. Roused cook at 12.35 (midnight). A very perfect morning. Under way at 3.20. Crossed another ice wave; dug down, and came to ice under 3 feet of hard and compact snow. Travelling very good, though not very slippery. At 5.50 A.M. I came across a convenient place for depositing a 40-ration depôt, and altered course for it. Halted, and started a party to make the hole. While this was being done, Ayles and I had a clamber up a very steep hill, about 400 feet high. I cannot make out where the land ends and ice begins; a second time to-day I sounded with our shovel, to find ice on a slope not 50 yards from where bare stones were visible. There is no crack, but the shelving land appears to blend with the ice, which rises in the form of a roller, with a second roller behind it, exactly as water rolls on a beach after a breeze of wind. The line of hummocks is between 5 and 6 miles off, and does not seem to differ from those farther east. Floes exceedingly small, and the fringes between them very close and numerous.

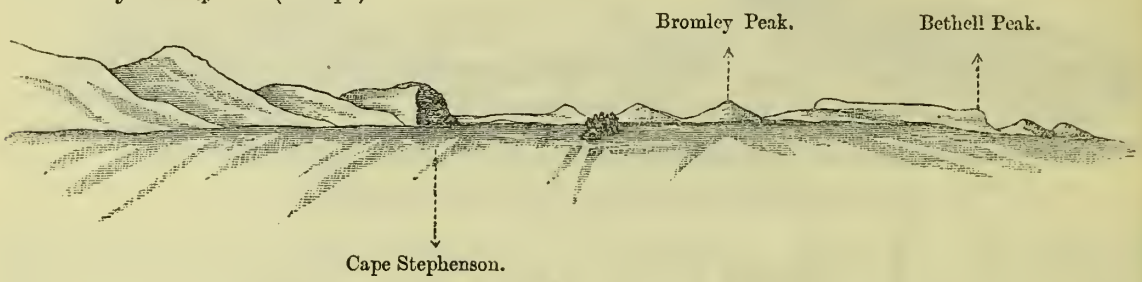
Tent + 32°
Air − 15°
Calm b.



We had less trouble in securing this depôt than the last, as, although the ground was just as hard below the surface, we were able, after picking about 8 inches in

depth, to place the depôt case in the hole, and collect plenty of rubble and soil from the vicinity, where the sun had exercised some influence, with which we covered it all up, mixing with snow to freeze the whole together.

The position of the depôt is marked by being just east of a deep ravine, Ram Bow Hill, N.W. ½ N. (comp.) Top of ravine, and west extreme of the land in transit, and the edge of a brow on with centre of Ward Hunt Island, the cone of which bears S. by W. ¼ W. (comp.)



CROSSING LOW LAND FROM CAPE ALEXANDRA TO MCCLINTOCK BAY.

The ground round the depôt is beautiful-looking soil, with small shingle, last year's saxifrage and poppy, and this year's moss, which latter was of such a brilliant green we all thoroughly enjoyed looking at it. It did our eyes good. A solitary lemming track was the only sign of animal life. The country gives no promise of game whatever, although I had a good look all about while the depôt was being secured.

Proceeded at 9.10 after lunch, and crossed two cracks, which extend northward, and look fresh. Got on to rising ground in an hour, steering N.N.E. (comp.) over hard snow. In walking ahead I came to what appeared like a ravine in our path. Altered course down an incline to clear it, then began a gradual ascent up low land, which extends 2 to 3 miles from the hills, and in the form of rollers like the ice waves before mentioned. We dragged up hill till 2 P.M., when we camped, having just previously risen the top of land 5 or 6 miles distant (another cape), and the top of high land much farther distant. I walked on about 2 miles after camping; the ascent being so gradual, I got scarcely any better view for so doing.

Bearings from camp:—

Centre of supposed distant island ..	N. 6° 55′ E
Cape..	N. 4° E.
Ram Bow Hill	N. 228° 31′ E.
Cone of Ward Hunt Island	N. 201° 0′ E.

The hummocks appear to be closing in towards the land, and promise to be very near the next cape or point. After seeing numerous plans, we find the moccasin pure and simple is preferable to any other fitting, and that lengthened overall trousers taken inside it, and secured by a kicking strap outside, is as good an arrangement as can be wanted.

The leather of the fishermen's boots is very good for soling purposes, if cut from well down, the extreme upper leather wears very quickly.

Made good, 8½ miles.
Marching, 7¼ hours.
Lunch, ½ hour.
Depôt, 3 hours.

By leaving the depôt, the sledge has been lightened 145 lbs.

Tuesday, May 9th.

Tent (shady side) + 15°
Air in sun (on the sledge) + 18°
West 1, b. c.

Thirty-seventh Journey. 18 days' provisions. Roused cook at 12.35 (midnight). Under way at 3.25. Continued our ascent parallel to, and about 1½ miles from the hills, until nearly lunch time, when we got a good view of the distant land. The supposed island of yesterday is the highest land on the opposite side of a seemingly large bay, the western extreme of which bears N. by E. ½ E. (comp.)

Sights for time:—

7h.	20m.	37s.	40°	21′	30″	I.E.—2	10″
7	22	42	40	28	50		

Meridian altitude, 48° 43′ 50″, gives Latitude 83° 0′ 30″ N.

Sun + 20°

Lunch at 8.25, afterwards proceeded along level and very fair travelling, over moderately hard snow, until at 10.30 A.M. we came to a steep descent of a good 200 feet.

ne result of all our uphill work, which we had hoped would have sloped down gradually instead. It was necessary to back the sledge down; the men sitting on the snow, hauling back on the drag-ropes. When about two-thirds the way down, the men became a ttle too confident, and the whole apparatus took charge. Fortunately, nothing caught the nners, and no harm resulted, but the astonishment which its capers caused the crew, ill probably induce them to be more careful on similar occasions.

We now crossed over a series of undulating rollers of lowland, which were parallel one another, and extending to the northward about 2 miles from the hills.

The travelling during the latter part of the day has not been so good, the sastrugi est and east being very deep and rugged.

Western Termination of Low Land off Cape Stephenson.

Camped at 2.15 P.M. Air + 5°
Cape Stephenson about 1 mile off.
Sketch and bearings on the chart.
Marching, $9\frac{1}{2}$ hours.
Lunch, $1\frac{1}{4}$ hours.
Made good and travelled, 9 miles.

Although tired, everyone was loth to go into the tent, the sun being warm enough admit of a comfortable pipe outside. We find ourselves a few days short of spirits of ine, caused by making water for the sick, &c., have ordered stearine to be used at ncheon instead.

The low land over which we have lately travelled, rising as it does gradually from e eastward, and terminating in a steep descent to the westward, may be worthy of servation as also the existence of the numerous ridges and rollers of land and ice, hich abound hereabouts. The snow-drifts about Cape Stephenson are very heavy, and considerable depth. The cape is about 300 feet high, and the hills just east of it nge from 400 to 600 feet.

Wednesday, May 10th.

Thirty-eighth Journey. 17 days' provisions Roused cook at 12.45 (midt.) A ery stiff breeze from the N.W. part of the night, which made the tent much colder an we have felt it for some time. This morning it is thick and snowing, but no wind. Air + 8° Calm, fog s.

Started at 3.20 A.M., steering N. by E. $\frac{1}{2}$ E. (by compass.) The men are nearly all uffering a great deal with their unfortunate legs, which appear to get worse every day. his we all feel to be very disappointing, as it affects the journey, and although stiff mbs were expected, every one thought the stiffness would wear off in time. It seems, owever, inclined to hang on, and sets at defiance all the limited medical skill we possess mong us, and to scorn succumbing to turpentine liniment, bandages, good "elbow rease," &c. With regard to bandages, I am almost afraid to apply them, for some of e limbs are not at all healthy looking; the slightest pressure of the finger leaves a dent hich remains a considerable time; and although I have given the most stringent orders bout lacing the foot gear on very slackly, I find the loosest moccasin string cuts an ugly, d looking mark. One or two cannot even bear anyone to lie against them, which makes excessively inconvenient at night, although every one is very good tempered, and mplaints are reduced to a minimum.

The legs get a little more comfortable after being a short time under way; but, somehow, the men do not appear up to the mark. Ayles and I are the only two who go all the pemmican we can get. Day by day we look forward to the land either going north or south; but, hitherto, we have been travelling nothing but west, or very little southerly of it. The state of the crew prevents my leaving the sledge, and, unless it is a state not hitherto experienced, I am at a loss to understand how an officer with men and satellite could get away. Not only could I take no men, but my own assistance in the drag-belt and at the runners is constantly required. Our aim, therefore, is to go in as straight a line, and as far as possible, another week, and we must be thinking of turning back. About 1½ hours after starting, a westerly wind, 4.5, sprung up in our faces, which, with the fog, made marching rather disagreeable. Steered by sun, sastrugi, wind, and compass, as opportunity offered, and made fair way over level, but rather softer travelling until 8.30 A.M., when we halted for lunch.

By this time the wind had freshened considerably. We rigged up the sail with two tent poles and guys to windward, under the lee of which screen we huddled together as long as feet would stand it, varied by periodical scampers to restore action and warmth in the extremities.

Pipes were tried, but the most persevering of us gave them up. After waiting an hour, the excitement around the kettle became intense, "Does it boil?" being the oft-repeated question. At last it did boil, and the hot tea, the half warmed bacon, &c., put a new aspect on things in general. Luncheon has the most invigorating effect on everyone, and is more enjoyed than any other meal. We used stearine in lieu of spirits; ¾ of a pound is ample. Started again at 9.55, getting occasional glimpses of the land here and there. Camped at 2.10 P.M., 2 or 3 miles from the west cape of the bay (Cape Richards).

Air — 12°
West 3.4, o. f.

Made good, N. by E. ½ E., 6½ miles.
Marching, 9¼ hours.
Lunch, 1½ hours.

Travelling has been good, across level floe in M'Clintock Bay, with hard sastrugi west and east, and occasional places of soft and deep snow. The weather has not allowed of much exploration, but the bay appears to be broken up by several small islands. Immediately round Cape Stephenson an arm runs 5 or 6 miles to the southward, and then turns to the westward. I could not see the end of it. There are some fine gable cliffs intersected by ravines, which are all very steep, and run as high as 500 or 600 feet. Plenty of deep snow on the land as usual, not a bare speck.

From Cape Stephenson to Cape Richards is about 9 miles, the one bearing from the other N. by E. ½ E. (comp).

Good complains to-night of a nasty pain in his left knee, which is a great deal swollen. He attributes it to slipping a great deal on the soles of his moccasins, which were made of liquid leather, and threw him down several times, until we cut them off in the middle of the journey. I have bandaged with flannel damped with turpentine liniment. His attacks of mild diarrhœa still continue from time to time, which, however, succumb to chalk and opium powders, and Gregory's mixture. He is positive the pemmican causes it, but that may be, perhaps, because he does not like it, and never did; and, notwithstanding his eating to please me, he does not get through enough to support him in the work which he does every day, for he is a very hard worker; and when, in addition, his rest is so often disturbed at night, I marvel at his doing what he does. The service goggles answer very well, but would be improved were they a little less shallow. The boxes are far too weak for their work.

Thursday, May 11th.

Air + 4°
Tent + 25°
S.W. 1, 2. o. s. m.

Thirty-ninth Journey. 16 days' provisions. Roused cook at 12.25 (midnight). Light snow and misty. Clouds from the southward.

I should like the men to have a rest, but too much time was lost in the outset to admit of it.

The line of hummocks appears to be nearing the land, so we are looking out for some decided alteration in the trend of the coast line. When we first left the ship our hopes pointed to a north running coast; now, as our outward journey approaches an end, we shall rejoice to see it go either way, except east and west.

Sights for time 1½ miles north of Cape Richards :—

7h.	2m.	44s.	39°	50′	30″		
7	3	54	39	55	20	⊙	Bearing N. 227° 35′ E. Chron. 7h. 6m. 0s.
7	5	0	39	59	50		

I.E. — 2′ 30″

Bearings from the same position :—

Cape Richards	..	N. 304°	50′ E.
Point in Bay	..	N. 284	0 E.
Bethell Peak	..	N. 238	0 E.
Bromley „	..	218	40
Cape Stephenson	..	210	
Extreme ..	..	206	15

The travelling is excellent, smooth, level, and with the soft snow only 2 to 3 inches deep.

Halted for lunch at 8 A.M. about 1½ miles north of Cape Richards, having just rossed a crack, and got on to an old "blue top" floe again. Off the cape extends the isual projecting low spit, shelving gradually to the ice, while ahead of us lie he hummocks, though apparently not quite close up to the land. A strong breeze, orce 5, accompanied with a sharp fine grained drift, sprung up from the westward uring lunch, which afterwards increased. Recrossed the crack, and steered N. by E. comp.), began ascending the low land off the cape, and finding the snow very soft and one of the best, hauled out from the land, going down hill, and at 12.30 (noon) reached he old floe, which was pressed up against it, broken in several places by cracks, forcing p small ridges and heaps of small stones and shingle, but without forming a single ummock. Temp. + 13° Clouds rapidly from S.W.

A short distance outside us were a few isolated hummocks or floebergs, with eavy snow drifts around them, but the actual line of hummocky ice was still about miles from the shore. We found the travelling very fair, and skirted along the edge f the shelving land, every now and again getting on to a few yards of smooth bare e, and then on rounded ice hillocks, numerous cracks, and deep soft snow.

Camped at 2.10 P.M., having just sighted the loom of another cape over the low nd, which cannot be very far distant. The cook fully appreciates his kitchen to-night, e is sheltered from the wind, and as comfortable as can be expected. My old shipmate nd sledge captain is unwell again to-night, supplemented the Gregory with 30 drops r. Sp. ammonia. S.W. 6, o. q. z. m.

The turpentine liniment is getting low, and as it does not appear to exercise eneficial effects commensurate with the amount of trouble bestowed on its application, am gradually discontinuing it. Rum is occasionally tried instead, but some say it is a waste of good liquor." Dry rubbing and pipes is the present treatment.

Made good, 7 miles.
Travelling, 9½ hours.
Lunch, 1½ hours.
The coast line from Cape Richards trends W. S.W.

Friday, May 12th.

Fortieth journey. 15 days on the sledge. Roused cook at 12.30 (midnight). A continuance of yesterday's disagreeable weather. Thick, and a stinging drift in our faces. Started at 3.20 A.M., over travelling which was none the better from the entire absence f light and shadow; proceeding a short distance along the floe of yesterday, we began o round the low land in the direction of the cape, which we saw now and then. We oon arrived on some deeply scored and hard sastrugi, on which we found it impossible o make certain of our footing, and the way we all fell and tumbled about would have een ludicrous, had it not been so tiresome. This work was not at all good for the "game legs," as the men call them; the Sergeant, Good, and Doidge suffering especially. We reached the cape (Fanshawe Martin) about 3½ hours after starting. Tent + 24° S.W. 6.7, o. q. z. m. Air + 12°

Foggy—Ice wall off Cape Fanshawe Martin. Also Steep West Extreme of Low Land.

A perpendicular wall of ice, between 15 and 20 feet high, and some 70 yards in length, occupies the dip between the land rising to the cape, and a rise to the shelving land round which we had travelled. This looks like the face of a miniature glacier, and is

situated about 30 or 40 yards from the floe. Fog prevented our seeing anything but the wall itself. The western termination of the low land which runs from the hills, between Cape Richards and Cape Fanshawe Martin, is steep and rugged, its partially bare face being composed of soil and large pebbles, and only about 50 feet high. The old blue-top is not quite close up to it, an interlying space of 60 yards, of a mixture of stones, earth, and ice, existing.

After rounding Cape Fanshawe Martin we crossed the tail of a low spit, which extends about a mile to the northward, and followed the trend of the coast, which from here was about S.W. (true). Halted for lunch at 8.20 A.M. and pitched the tent. Afterwards the wind fell a little, force 4, drift ceased, and the sun made a faint struggle to show out. All of us felt the cold very much, although the temperature ranged between 5 and 12 degrees above zero. As we marched on and the fog partially lifted, we sighted land S.S.E. (true), and afterwards an extreme S.W. (true). We were thus crossing another bay, or perhaps an archipelago, for through the mist it looked as if we were passing outside a lot of islands.

I picked up the leaf of a willow to-day, which shows there must be bare places somewhere, but the snow drifts in this neighbourhood are tremendous. The travelling

LOW LAND, AND MILNE BAY—HEAVY SNOW DRIFTS.

in the afternoon was better, but in many places through deep and soft snow. To the eastward of the cape the cracks were very numerous, and nearly all of us had some experience of them, for it was impossible to see where they led. Beyond these no pressure appears to be exerted. The line of hummocks does not approach nearer than $1\frac{1}{2}$ miles, and where the cracks exist, the edges of the floe are not raised or broken.

Though the line of hummocks is somewhat closer in, there appears to be a great similarity in the condition and quality of the ice here and off Cape Columbia. Between the two capes is a distance of nearly 80 miles, and about midway between the two lies Ward Hunt Island. The coast line is broken by three bays, two of which are of considerable extent; and off the points, and now and again for a few continuous miles, are projecting low spits and ice ridges.

W.S.W. 4.6.o.c.f.
Air + 5°
Tent at tea + 20°

The hummocks do not come in close to Ward Hunt Island, its northern face being protected apparently by one of the usual fenders.

Made good, 7 miles.
Marching, $9\frac{1}{2}$ miles.
Lunch, $1\frac{1}{2}$ hours.

Saturday, May 13th.

Tent + 20°
Air + 6°
S.Wy. 4, o. c. f.

Forty-first Journey. 14 days' provisions. Roused cook at 12.30 (midnt.). The same persistent head wind, and a fog that would rival the densest specimen ever experienced in London on a November day. The crew are less lively in spirits than usual, I fancy the miserable weather, their stiff legs, and extra wear and tear due to so much fog, all combine to subdue them a little. I should like to give them a rest, but they are as anxious as I am to get on. Under way at 3.30 A.M. Weather cleared a little. Steered to cross the usual incline, which runs from Cape Bicknor (the extreme now in sight). I remained behind to get a sketch of the land, &c., and on overtaking the sledge, found it making but slow progress. The Sergeant and Doidge struggle manfully on, but they are not up to much, and there are a few more not much better. The actual weight on the sledge is nothing comparatively, but it is inability to walk rather than drag well which impedes the party. Halted for lunch at 8.45 A.M., close by the low land, afterwards had a very heavy hour's pull uphill through soft and over hard snow, then along level travelling of the same kind, about S.W. (true), and parallel to hills from 500 to 600 feet high, with numerous ravines between them. We in time came to a piece of

down-hill, on our descent to another bay or inlet, a portion of which easy travelling I reserved for to-morrow, to ease the stiff legs at starting.

Camped at 2.15 P.M.
Marching, $9\frac{1}{4}$ hours.
Lunch, $1\frac{1}{2}$ hours.
Made good, $8\frac{1}{2}$ miles.

Air + 8°
S.Wy. 1.2, o. c. m.

Shall make a short march to-morrow, in the hopes it may do the men good. It will be their first spell since leaving the ship.

Our marches are fair work, and done by time, 5 minutes spell after $1\frac{3}{4}$ hours, another after $3\frac{1}{2}$, then none till lunch, after which meal we have either one 7 minute spell, or two 5 minute spells, according to length of journey. These times are only varied now and again to give an occasional "pleasant surprise." The men are always ready for lunch, which we have from 5 to $5\frac{1}{2}$ hours after starting.

Tent at tea + 39°

Sunday, May 14th.

Forty-second Journey. 13 days' provisions. Roused cook at 3 A.M., having given all hands an extra $2\frac{1}{2}$ hours' sleep. Wind gone, but the dull leaden weather remains. A Sunday morning, with a desultory conversation going on while waiting for pemmican, now of England, now of fresh food and vegetables (a pretty constant topic), and an occasional lamentation as to the wretched state of the legs, with an expectation that they may be the only cases, and the fear that in consequence their work will not bear comparison with that done by the other sledges, and those who have gone before us. About 6 A.M. the mist cleared off gradually, and the sun burst forth after an absence of several days.

Tent + 30°
Calm o. g. m.

Tent + 34°
Air + 5°
Calm b. c. m.

Sights for time:—

6h.	40m.	51s.	I.E. – 2′ 15″	40°	17′	40″
6	42	16		40	22	50
6	44	3		40	29	10
6	45	45		40	35	0
6	48	19		40	44	50

⊙ Bearing N. 219° 20′ E.
Chron. 6h. 54m. 30s.
Cape Bicknor, 173° 20′.
End of bay, 280° 0′.

Under way at 6.15 A.M., and the sledge went merrily down the hill, but I repented my decision of last night to keep easy work for a start, for the sledge was too lively for the unfortunate cripples, some of whom were in positive agony. After proceeding about a mile we reached the level floe of a bay 7 to 8 miles deep, with steep cliffy shores and hills rising from 400 to 1,000 feet in height.

These hills, like all those we have met with, do not run in ranges, but are scattered irregularly about and separated and cut up by ravines in all directions. The S.W. point is low and shelving, and just open of it, about 20 miles distant, shows out another cape which I have pointed out to the men as the spot from which I shall be perfectly satisfied to turn back.

The bay we are crossing is Milne Bay of the chart. Halted for lunch at 9.55. The travelling would be very good were it not for frequent soft patches of snow, into which we sometimes sink above our knees. About 12.30 P.M. a snow bunting flew within 20 yards of the sledge, and is the first living creature we have set eyes on since leaving the "Poppies."

Air. shade + 5°
Sun on sledge + 35°
Sun on snow + 23°
Calm b. c.

Meridian Altitude, 51° 51′ 0″. I.E. – 2′ 30″. Latitude 82° 42′ 0″ N.

The thermometer exposed to the sun on a blue comforter showed + 59°, and in the shade + 10°.

Camped at 2.15 P.M.

The change in the weather has caused a great deal of thirst among the men.

Made good, 7 miles.
Marching, 6 hours.
Lunch, $1\frac{1}{2}$ „

Bearings from camp:—

Above Cape Fanshawe Martin, over the ridge ..	164° 50′
Head of Milne Bay..	N. 254 5 E.
Hill above distant cape	N. 345 45 E.

Monday, May 15th.

Tent on shady side + 30°

Temp. − 6°
Calm, b. c. m.
On sledge in sun at 3 a.m. + 15°

Forty-third Journey. 12 days' provisions. Roused cook at 12.30 (mid). Bright sunshine and calm.

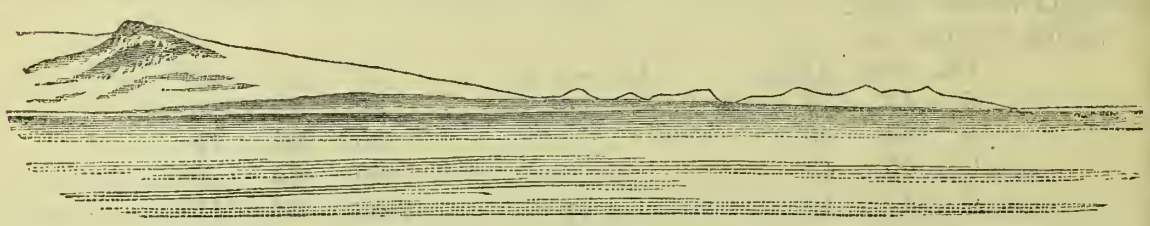
The men all complaining a great deal of thirst. Under way at 3.30 A.M. Everything hoisted up to dry. Travelling a little better than yesterday. Misty about the horizon iceward.

The waterproof sheet is beginning to get troublesome; we stow it loosely on top of everything. The cook's boots, which I had made of "sheet insertion" (which is composed of vulcanized india-rubber and canvas) have stood all their wear and tear remarkably well, and are now as good as new. During the whole journey this material has never broken or become hard, and could the waterproof sheets be made of something of the same kind, but a little lighter, I am of opinion that a great advantage would be derived from the change, as those with which we are supplied require the most careful treatment, and are very liable to become hard and brittle. An experiment was made with this insertion at a temperature of − 55° to − 60° in the winter, when an exposure of over 24 hours, after soaking it in water, failed to render it hard or brittle, it remained pliable as ever.

Sights for time:—

7h.	35m.	56s.	43°	54′	30″		
7	37	29	44	0	30	⊙ bearing.	237° 50′
7	38	47	44	5	0	Chron. 7h. 41m. 0s.	

Meridian altitude, 52° 31′ 0″. I.E. − 2′ 15″ Latitude, 82° 36′ 55″ N.



Cape Evans, and across Yelverton Bay.

The men call the low S.W. point of the bay "Game Leg Point." On rounding this point the land runs back to the southward and forms another large and open bay, whose S.W. extreme is the low coast about the distant point for which we are steering. The land round the bay is not very steep, covered in snow, and runs up among hills 500 to 600 feet high. As the land gets to the westward it becomes rather higher and more cliffy, the highest and steepest in the S.W. part of the bay, which gradually decreases till it reaches our extreme land in sight.

The bay is called Yelverton Bay in the chart.

Halted for lunch at 8.30 A.M., and camped in Yelverton Bay at 2.30 P.M.

Have made a very fair journey indeed.

On camping, the pickaxe was found to have been left behind at the last encampment, where it had been used for securing the tent guy to. I prepared for a walk back, but the crew all wanted to go instead, so I ultimately arranged to take Ayles with me to-morrow, while the sledge goes on; we should pick them up by camping time.

Made good, 9 miles.
Marching, 9½ hours.
Lunch, 1½ hours.

The men have, I think, been all the better for their rest yesterday; the Sergeant has a pair of discoloured legs; Stubbs ditto, but more angry looking. Doidge's legs are tremendously swollen, but scarcely any discolouration, and Good has never been right since the afternoon he slipped in his liquid leather soles, though, from the swelling shifting to the ankle as well as the knee, I am half inclined to believe it is not altogether due to the supposed cause. The discolouration is behind the knees, on the after part of the thighs, and extends to the ankles. Angry red, a dark, unhealthy looking purple, lightish blue, and even a dirty green, are to be found among the colours.

They have asked me to let them revel in the use of turpentine liniment, and as it is the only means I have of leading them to believe they are doing themselves good, it is again in full swing, and likely to scent the tent every night until it is finished. Luckily, we all like the smell. No snow-blindness except my own—my eyes being extremely painful.

Tuesday, May 16th.

Forty-fourth Journey. 11 days provisions on the sledge. Roused cook at 12.30 (midnight). Gave Good orders to take the sledge on, with 6 hands, for the extreme point, proceed the usual 11 hours, or, in the event of fog, camp.

Ayles and I started off for the pickaxe at 3 A.M. with our luncheons. Arrived at previous encampment, 4½ hours' good walking; from the travelling and pace we had come, I put it at 10½ statute miles. Just as we got the pickaxe a puff of wind came from the N.E., and a fog bank to iceward made us hurry on our way back. The wind soon increased to a moderate gale, with a very high drift, which threatened to destroy our friend the sledge tracks. About an hour afterwards we lost sight of the extreme of land, so I concluded Good would camp.

Reached our morning starting point in 9 hours, where we halted, standing with our backs to the wind for 5 minutes, to eat some pemmican biscuit, &c. Two hours afterwards we passed their luncheon place, and then found they had gone on under sail, before a wind which was now blowing a fresh gale, with tremendous drift. My companion began to show signs of fatigue (which with Ayles means a great deal), though we tramped on before the gale at a rattling pace.

We followed the meandering sledge track for nearly another 2 hours, with comparative ease, after which we got off it very frequently, it being entirely obliterated for several yards at a time. Our plan now was for Ayles to stand still, while I walked round in a circle until we got hold of the track again. We had almost prepared ourselves for an uncomfortable lodging in the snow, by the aid of our friendly pickaxe, when the tent came in sight, well on our port bow, about 50 yards distant. Just as we saw it a gun was fired, and the boatswain's mate's pipe sounded above and among an unearthly yelling, and the row of the wind—a continuation of the programme they had been assiduously carrying out in case we should be passing.

We arrived at 4.40 P.M., after an absence of 13¾ hours, and never were men more rejoiced, I believe, than they were when they saw us. Although they had been camped for some 3 hours, there they were, seated anyhow, without having shifted, or eaten anything, and as anxious as they could be. The cook bustled out into the drift and gale, only too glad to have the chance of giving us all our supper, and hot tea and pemmican soon put all to-rights. Ayles was a little distressed, so I gave him a dose of sal volatile, or "Ladies' Mixture" as the men call it, and told him to rub in some liniment; and, after a short yarn as to the day's proceedings, we rolled ourselves up and slumbered peacefully, and fully appreciating the comforts of our Arctic tent. The sail had driven the sledge very fast, in fact, too fast for some of them. They proceeded till the regular time was up, having made good (to judge by our walking) 9½ to 10 miles. The travelling has been a mixture of very good and, every now and again, most inferior, deep snow holes, which they tell me led them an "awful dance," as the sledge, being under sail, refused to go straight, and occasionally took dives, which brought her up all standing. The men do not seem to care about a fair wind. As I was writing my journal, Doidge, our cook, was digging his way into the tent; the drift had already collected within a foot of the top of the porch, and finding its way through the smallest openings in the tent, deposited itself everywhere, much to our discomfort.

Air + 12°
N.E. 7.8, o. z.

The kitchen has proved a great boon, being comparatively free from drift.

Made good, 9½ miles.
Marching, 9¼ hours.
Lunch, 1½ hours.

May 17th.

Forty-fifth Journey. 10 days' provisions. Roused cook at 5 A.M. Blowing a whole N.E. gale all night. About 5 the wind decreased a little, and as Ayles and I were late returning yesterday, we have lost no time through bad weather. The porch was filled right up to the top with drift, which formed a wall quite three feet thick, through which the cook and I burrowed out with a shovel. The drift was still blowing some 15 to 20 feet above the floe, hiding everything a few yards distant, though a bright sun was trying to penetrate through, and there appeared plenty of blue sky overhead. The sledge was all but buried.

Tent + 26°
Air + 12°
N.E. 6.7, b. c. q. z.

Ayles a little stiff, but all right otherwise. Good groaning with a violent pain in his knee, which kept him awake nearly all night. Under way at 8.40 A.M. After half a pipe in the tent, digging out sledge, &c., made sail, but the gale broke half an hour after, as suddenly as it began, and the men were not sorry to resume their drag

belts. The drift has made the travelling soft and heavy in places, but in others it is as hard as ever. It is worth observing that in no case did bare ice show out, which leads me to think the floes in the bays are not round-topped, or being so, the hillocks are much smaller and the snow very deep on them. Another thing is the entire absence of even isolated hummocks, which would seem to point out either that the water is too shallow to admit of their being drifted in, or that the ice in the bays is of great thickness, and the influence of tide so little felt that it does not break up from year to year.

Cape Alert (since called Alfred Ernest after H.R.H. the Duke of Edinburgh), as we call the extreme, appears about 7 miles distant, but as we near it its resemblance to a cape begins to get less, and it may be that the coast line continues a gradual trend farther to the southward.

Between us and the land lies a low snow incline, projecting as usual, but for a good 3 miles from the hills. Yelverton Bay, is enclosed between Cape Evans, and Cape Alfred Ernest, and is about 22 miles across; its depth is about 6 miles, but again within it is split into three bays, which fall back for another 5 to 10 miles, and may perhaps again join in rear of the projecting land, and form two islands.

N.E. 4, b. c. z.

Meridian altitude, 53° 42′ 0″. I.E. −2′ 15″. Latitude, 82° 27′ 33″ N.

The travelling has not been so favourable, the snow being so crusted over, that on breaking through, the toes of our moccasins toggled themselves underneath, for we could not force our legs through the crust.

The men are all thoroughly tired and done up.

Mann has a sharp pain across the abdomen, which came on soon after starting this morning. I directed him to pull easy after lunch, and have now put on a mustard plaster.

Our bread again appears short, so much goes in dust, which escapes through the bread bags. We are on two-thirds allowance (9 ounces a day.) Camped at 7.30 P.M.

West 1, b. c.
Air + 10°

The latter part of our journey took us across 3 ridges of ice running parallel to one another, and to the low land farther on, the level floe losing itself in these heavy ice rollers.

Marching, 9 hours.
Lunch, $1\frac{3}{4}$ hours.
Made good, 7 miles.

Sights for time :—

6h. 18m. 38s.	36° 52′ 30″	I.E. − 2′ 15″.	
6 20 58	36 44 10		
6 23 32	36 34 20		

⊙ Bearing N. 43° E. Chron. 6h. 26m. 10s.

Thursday, May 18th.

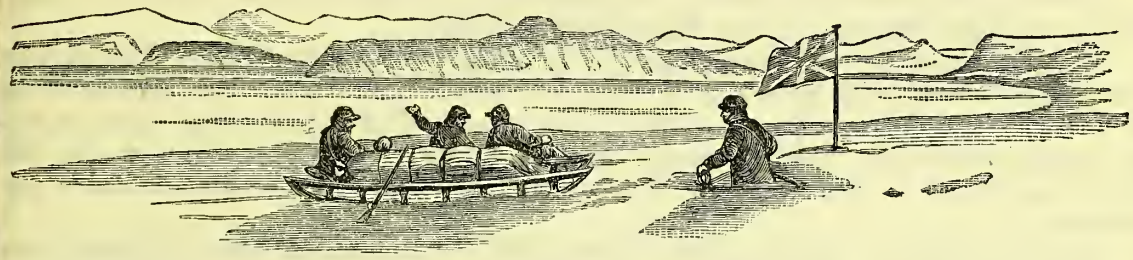
Forty-sixth Journey. 9 days' provisions on sledge. Cook at 6 A.M. Taking into consideration the state of the crew, and the quantity of provisions remaining, I think it advisable to turn back for the ship to-day. The biscuit remaining is 5 days' full allowance, which with a healthy crew would be ample, but looking, as I must, to marches not much better than we have been lately doing, it will have to last 10 days. Have reduced biscuit to half allowance.

With this in view, I left the tent pitched, and Mann (who is not fit to march, but better than last night), to look after the gear, while with the sledge, cooking gear, luncheons, pickaxe, &c., the rest of us went on for a half journey to try and reach a place for building a cairn, and get a little more extended view of the coast line. Under way at 9 A.M. A very clear and beautiful day. After seeing Mann comfortable, and leaving him means of cooking his tea, I followed at 9.25, and soon overtook Doidge and the Sergeant limping along several hundred yards in rear of the sledge. I told them they had better go back, but this they begged off, and continued their painful journey. Overtaking the sledge I walked ahead up the steady incline, which began about 2 miles from the camp. After walking some 4 miles I found the cape proved Alert in reality, for I came to the conclusion there was no cape at all, but that the coast line trended round more to the southward after clearing Yelverton Bay. The land was covered deeply in snow, and there was no place at all suitable for building a cairn, anywhere within reach of the party. I was now about 200 feet above the sea or ice level, and had a very good and careful look all round. No land was visible, except the coast along which we were travelling, my view

of which extended about 7 miles farther than where I had come to, the trend being gradually southward and westward.

The line of hummocks was about 4 miles off, and appeared to incline slightly to the southward in the distance. The land itself is not high, and there being no cliffs, not a speck bare of snow was visible. The hills sloped gradually from the ice, and the ridge on which we were at the extreme of our journey, was a portion of undulating low land, attached to the coast, and continuing S.W. with it.

I turned back and met the sledge. Halted for grog and biscuit. Hoisted Captain Nares' Union Jack, and drank Her Majesty's health.



Looking S.E. (true) Across Yelverton Bay.

After lunch we sounded, and came to solid ice, under $4\frac{1}{2}$ feet of snow, but from the height and extent of the ridges, I should imagine land lay underneath.

Looking back on to the bay, I observed a series of ice rollers, two of which we crossed over yesterday.

On getting back to the tent, I found my patient much easier, the plaster having apparently had a very good effect.

Shade + 14°
Sun on snow + 35°
Calm b. c.
Tent + 48°

The remaining two or three marching hours I gave up to the men, who used them in patching up foot gear, and other little things which had become necessary.

Our foot gear all became thoroughly wet to-day, one may say for the first time.

Meridian altitude, 54° 12′ 30″. Latitude, 82° 25′ N.

Longitude of camp	84°	56′	0″	W.
Latitude of camp	82	21	0	N.
Longitude of extreme point	85	33	0	W.
Latitude of extreme point	82	16	0	N.
Longitude of farthest land seen	86	30	0	W.
Latitude of farthest land seen	82	10	0	N.

And must trend to the southward.

* End of Outward Journey.—After taking the above sights for Meridian Altitude and Ex-Meridian, I found the sextant had a great deal of side error, which had accumulated since my last observations, and which rendered those taken now valueless. Latitude 82° 21′ 0″ N. is obtained by applying the difference of latitude run since the meridian altitude taken on May 17, when it gave 82° 27′ 33″ N.

Friday, May 19th.

Homeward Journey.

Forty-seventh Journey. 8 days' provisions. Called cook at 4 A.M. The fog settled down during the night, hiding the land. Under way at 6.35 A.M., a light snow falling. Compass course S. by E., following back on our outward track. Halted for lunch at noon. Passed camp of 16th at 4.5 P.M.

Tent + 26°
Shade + 8°
Sun + 42°
Westy. 1, o. f. s.
At 2 p.m. + 14°
Calm o. m.

Camped at 6 P.M.
No sights or bearings.
Made good, S. by E. $9\frac{1}{2}$ miles.
Marching, $9\frac{1}{2}$ hours.
Lunch, $1\frac{3}{4}$ hours.

Began biscuit which has been stowed in an ordinary black bag. Find it highly flavoured, which according to Doidge's opinion in particular, and the opinion of us all is, in the language of the former, "no detriment." It is in first-rate condition, and the ruinous loss by dust is avoided (that is, the dust is saved.)

Saturday, May 20th.

Tent + 46°.

Forty-eighth Journey. 7 days' provisions. Roused cook at 4.55 A.M. Great groaning about the lower limbs, the noises in the tent are neither cheering nor pleasant.

Sights for time before starting ;—

7h.	18m.	16s.	45°	12′	30″	I.E. - 4′ 40″
7	19	55	45	18	40	
7	21	40	45	24	10	
7	22	50	45	32	40	
7	25	40	45	39	10	

Ar + 10°
Calm b. c

Under way at 7.40 A.M.

Were it not for the tale told by the shady side of men's noses, and a few other trifles, one might imagine it a fine English summer day.

Such imagination does not last long, for I was fairly driven away from the sledge for a short time to escape the moaning of the unfortunate fellows with their legs, knowing full well how utterly powerless I am to give them any relief. As the day wears on, and the journey concludes, their naturally buoyant spirits return, and many is the joke which goes round in the tent, as they sit rubbing their limbs with admirable perseverance.

But the morning. The "one, two, three, haul," becomes more often necessary, and the voice of the sledge captain is fast losing the cheery tone we have been accustomed to.

Sun + 40°

The weather is becoming too warm.

Meridian altitude, 54° 48′ 30″ I.E.—4′ 40″. Latitude, 82° 33′ 56″ N.

After taking this observation, I packed up and followed the sledge, which had gone on some distance ahead.

The chronometer, which I had carried always in the same place (my trousers pocket) stopped at 12.25, which must have been as I followed the sledge. I cannot account for it, otherwise than being caused by my going unexpectedly into deep soft patches, breaking through a seemingly hard and secure crust on the surface of the snow.

I am now dependent on a small watch belonging to the Sergeant-Major, which has already shown its disapproval of Arctic sledge travelling on many occasions, and in many ways.

Air + 13°
Calm o. c.

A snow bunting flew round the sledge.

Camped at 6.35 P.M.
Made good, S. by E. 9½ miles.
Marching, 9½ hours.
Lunch, 1¼ hours.

Sunday, May 21st.

Tent + 57°
(horribly warm).
Air + 15°
Calm o. c. m.

Forty-ninth Journey. 6 days' provisions. Cook at 5.40 A.M. Snow bunting came to breakfast. Under way at 8.50 A.M.

Meridian altitude, 55° 0′ 30″. I.E — 5′. Latitude, 82° 40′ N.

Halted for lunch off Cape Evans during which a light wind sprung up from the westward, to which we made sail. Travelling very good, and the men getting along very well.

Air + 16°
Calm b. c. m.

Camped at 6.55 P.M. in Milne Bay.

Made good, S. by E. 6 miles.
Marching, 8½ hours.
Lunch, 1½ hours.
Read the Evening Service.

Milne Bay is 7 to 8 miles across, and about the same in depth; it extends from Cape May on the N.E. to Cape Evans on the S.W., and gets narrower and narrower, until it reaches a very promising looking valley running to the south-eastward. The snow drifts round Cape May are very heavy. The east coast is less steep, and not so high as that opposite, the latter rises to 800 or 900 feet, and whereas the former is smooth and rounded, the west coast is scored with numerous water courses down the face of the hills.

Monday, May 22nd.

Tent + 45°
Air + 18°
S.W.lt. air o. c. f.

Fiftieth Journey. 5 days' provisions. Cook at 5.25 A.M. Under way at 8 A.M. Light very bad for travelling. Reached the east side of Milne Bay at 12.30, and began going up the steep incline which we came down on the 14th inst. Travelling, hill, and legs, made it heavy for our shoulders. Halted for lunch 1 P.M. This meal as usual did

vonders, and we camped at 7 P.M., having cleared the low land, and passed Cape Bicknor. Air + 18° N.E. 3.4, o. q. f.

Snow bunting paid us a visit about lunch time. The toast to-night was given, "The Mayor and Corporation of Portsmouth," the men remembering with many queer and pointed remarks, the very satisfactory way they were entertained this day last year. Tent + 34

Good's knee is very painful. Working like a horse, as he does all day, he creeps into his bag at night groaning, and after a sleepless night, rouses out in an agony of pain in the morning. I am applying flannel bandage over lint soaked in turpentine liniment, but it does not appear to do much good. Mitchell and Ayles are the two sound ones left. Thank goodness the travelling is very good.

Made good, 9 miles.
Marching, 9½ hours.
Lunch, 1½ hours.

Steering by sastrugi N.E. and S.W. (true), weather very foggy and thick.

Tuesday, May 23rd.

Fifty-first Journey. 4 days' provisions. Cook at 6 A.M. Tent + 34°

The travelling being very good, I started for a walk to Cape Bicknor. It is nearly perpendicular, facing to the northward, about 300 or 350 feet high, and with a débris of huge masses of stone extending nearly 100 yards from its base. About 200 yards from the coast-line of the bay (which runs about S. by E. true), numerous small ridges of mud and pebbles are thrown up, some of them to a height of 30 and 40 feet, almost perpendicular to iceward, and covered with snow and ice, but sloping more gradually to a lane of hard, level, and crusty ice mixed with stones, which occupies the space between the ridges and the land. N.E. 2.3, b. c. Air + 20°

The ice outside the ridges is much cracked in their neighbourhood, generally in a direction parallel to the land, but there was no sign of a hummock. The depth of the snow on the ice is about 3 feet. After procuring a few specimens of stone, &c., I walked on, to try and find a short cut into M'Clintock Bay, by passing south of Cape Fanshawe Martin. I half expected one from the appearance of the land on our outward journey. I was disappointed. This bay is about 7 miles deep, and entirely free of islets and islands, which I fancied might exist. I rejoined the sledge after 5 hours' absence, and finding they were getting on all right, I went on inshore, with the intention of crossing the high land (about 1,100 feet) above Cape Fanshawe Martin, and picking up my party on the other side. I reached the land about 1½ miles from the cape, finding exceedingly heavy walking through soft deep snow. After walking up a moderately steep incline, some 700 feet, I turned towards the hill over the cape, and proceeded until stopped by a perpendicular drop of 70 or 80 feet, caused apparently by an enormous fissure in either compressed snow or solid ice, which existed in the shape of a deep chasm, which swept round the base of the hill, which latter formed a steep cliff. I followed its course for over a mile, gradually walking up an incline till I was nearly 1,000 feet above the ice. I found the chasm continued more like a ravine, and curved away in the direction of a moderately high range of hills, bearing about S.W. (true), distant some 5 or 6 miles. Wherever I saw it the sides were too steep to admit of crossing, so I retraced my steps and followed the chasm to its mouth, about ¾ of a mile west of Cape Fanshawe Martin. Here I got to the foot of the cliff; and, from the entire absence of stone or earth, and the appearance of large masses of ice which here and there protruded from among the snow, I believe the land is covered with ice and compressed snow to a great depth, and that the small wall of ice east of the cape, which we saw on our way out, is the termination of a similar state of things on that side. As the weather was very clear, I got a very good view across the "Palæocrystic Sea" for a certain distance. I saw a great deal, but nothing beyond plenty of hummocks, which would seem to point out the necessity for the action of very energetic "wayvardens" in the parish before the road will be available for travelling any great distance to the northward.

A keen wind from the N.E. (force 6) with a sharp drift came on as I followed the sledge. I overtook my party just as they were camping under the lee of a small glacier, on the east side of the cape.

Made good, 9 miles S. by E. ½ E.
Marching, 9¼ hours. Air + 10° N.E. 6, o. c. z.
Luncheon, 1¼ hours.

Travelling very good, except latterly, over very hard and rugged sastrugi.

Wednesday, May 24th.

Tent + 35°
Air − 10°
N.Ey. lt. air, b. c.

Fifty-second journey. 3 days' provisions. Roused cook at 6 A.M.

At 8.30 A.M. Ayles, Stubbs, and I started off with pickaxe and shovels for a brow about 300 feet above the ice, and just east of Cape Fanshawe Martin. After walking about $\frac{1}{4}$ of a mile, Stubbs became faint and sick. Finding he recovered after halting a few minutes, Ayles and I pushed on, leaving him to follow more slowly with the rest of the party. After a tolerably steep climb, we reached a very good spot for building a cairn, and set to work forming a foundation of very heavy stones, of which there were plenty. Half an hour afterwards the crew came struggling and toiling up, impressing me more seriously with the exceedingly weak state they were in, which I had hitherto failed so thoroughly to realise. They were obliged to halt for breath every few yards, and were unable to set to work for some minutes after they reached us.

When the cairn was fairly under way I went down to the tent, and met Doidge not half way up. He showed such evident signs of distress that I ordered him down again, although I was half afraid of making any one of the party appear worse than another by easing him off and throwing more work on the remainder.

On reaching the tent I wrote a record and placed it, with a chart of our journey, in a small record tin, enclosed in another and larger one, the space between the two run in with melted bacon lard, which quickly became a solid mass. When I reached Good and his builders again, I found a very substantial and well-built cairn, solid to 9 feet in height. After depositing the record tin, we were not sorry to get down, as a strong N.E. wind was blowing, all hands very cold, and thoroughly able to appreciate the hot tea and cold bacon which Doidge had already got ready

Under way at 2.40 P.M., following round the low land, and picking up the outward tracks on the old floe. Sighted Cape Stephenson at 3.45, and continued on the floe in preference to crossing the land. Camped at 8.15 P.M. in M'Clintock Bay, about two miles from Cape Richards.

Temp. + 12°
N.E. 1, b. c. m.

Made good, S. by W. 7 miles.
Travelling, $5\frac{1}{2}$ hours.
Building cairn, 5 hours.
Lunch, $1\frac{1}{4}$ hours.

The snow in places is assuming a wormeaten or honey-combed appearance.

A clearer view of the small glacier to-day showed it to be much longer than I thought. It was between 300 and 400 feet, with a perpendicular face 20 to 25 feet deep, formed in layers of a greenish and half mud-coloured ice, the latter looking more like a frozen mixture of mud and snow. The lines of strata did not run straight, but were parallel to one another, curved and contorted as if adapting themselves to the form of the land beneath. The land above it is entirely covered with snow, and rises in a rounded and moderately steep slope to 900 or 1,000 feet. On camping I had a regular survey of the legs, which do not improve in appearance.

It is a curious thing that Doidge, Wood, Mann, and Stubbs are the worst, and *wore* stockings until I forbade them, while Ayles (all right), Mitchell (nearly so), and Good (whose knee appears a different case) never travelled in stockings. At present, even the loose boot hose has to be turned down to relieve the pressure on the march.

Although a sledging party is not often able to fall into the temptation of "keeping spirits up by pouring spirits down," we gave Her Majesty the Queen our best wishes, and "spliced the main brace," which led to a conversation on the Queen's birthday of last year, thence to the day on which it was kept, our departure from England, and a general summary of subsequent events, amid which and tobacco smoke we rolled ourselves up in our bags and fell asleep.

COPY OF RECORD IN CAIRN.

"This cairn was built by the 'Challenger' sledge crew, detached on an exploring expedition to the westward, from H.M.S. 'Alert,' G. S. Nares, Esq., Captain. No cairn has been erected westward of this, and this does not mark the farthest position attained by the party.

"The extreme reached is shown in the accompanying chart, as across three more bays, and about 43 miles beyond this cairn. In addition to this sledge expedition, a northern

division, under Commander Markham, is endeavouring to force a way northward over the ice, and H.M.S. 'Discovery' has parties away exploring the north coast of Greenland. 'Challenger' is 52 days from the ship, and on the homeward journey.

"Names of party. Date.

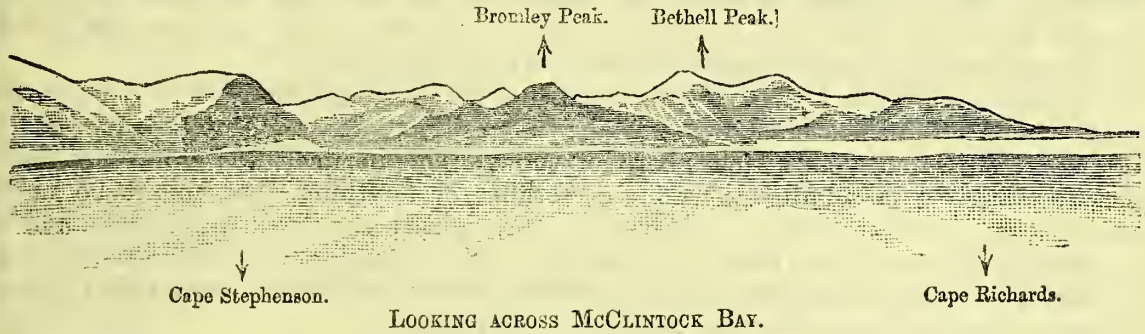
"Winter quarters of both ships.

"P. ALDRICH, *Lieut.*,
"*In command of the Party.*"

Thursday, May 25th.

Fifty-third Journey. 2 days' provisions left. Cook at 6.30 A.M. Under way at 9.25. Hit off faint traces here and there of our old track, which stood us good service in the dense fog. Tent + 44° Air + 15° Calm, dense fog.

Halted for lunch at 2.45 P.M., during which the fog lifted a little, so I left the sledge, and walked to Bromley Peak, a remarkable looking black cliff, situated on one of Sun at 1 p.m. + 43°



LOOKING ACROSS MCCLINTOCK BAY.

two small peninsulas which stand out in M'Clintock Bay. The second peninsula is very steep, and rises to about 1,000 feet. This I have named Bethell Peak.

The floe remained unbroken up to the former nearly, but with numerous rounded hummocks, which were separated from actual contact with the land by a narrow space of hard, level ice, with a few inches of snow on its surface. Just as I reached my destination a dense fog settled down over everything, and left nothing to be done but retrace my steps and return to the sledge.

Reached the sledge at 7.20 A.M. Air + 15° Calm, o. f.

Camped at 8.35 P.M.
Made good. 9½ miles, S. by W.
Marching, 9¾ hours.
Lunch, 1½ hours.

Travelling very good, except occasional soft patches.

Friday, May 26th.

Fifty-fourth Journey. 1 day's provisions left.

A strong breeze from the S.W. all night, and still blowing. Have made it optional to travel in either duck boots or moccasins. The latter often become sodden, then frozen. By the time we were under way a smart S.W. gale and plenty of drift had set in. The latter, combined with a thick fog, hid everything a few yards distant. Tent + 30° Air + 18° S.W. 7 to 8, f. q. z

Started sledge under close reefed sail, Ayles, Mitchell, and I steering her as best we could at the double, while she plunged through very fine and soft snow, up to and above our knees in places, then on to hard sastrugi, the direction of which could not be seen, and occasionally coming to a dead stop with the forecastle well buried.

The remainder of the party came tumbling on as fast as their legs would allow them, but we had to wait constantly, as our tracks were obliterated too quickly to leave them far behind. Steered a course as nearly as we could to take the low part of the spit off Cape Stephenson.

Halted at 11.15 for lunch, and afterwards an afternoon march, with travelling which required all hands in the drag-belts occasionally, and a certain amount of activity to keep clear of the runners very often.

At 5.30 P.M. the snow and drift became rather less, and the loom of the land showed we had steered a very good course (which was comparatively easy, being dead before the wind). Sighted Peculiar Hill right ahead, and are about 4 miles from the depot. Camped at 6 P.M.

Made good, S. by W. ½ W., 12 miles (our best journey). Air + 18° S.W. 6.7, o. z. m.
Marching, 10 hours. Tent + 35°
Lunch, 2 hours.

Saturday, May 27th.

Fifty-fifth Journey. *No* provisions on the sledge would have been correctly stated, had all eaten their allowance. The generality of appetites, however, are small, and we have spare pemmican, tea in lieu of cocoa, and biscuit for to-day at half allowance as usual. I hardly expected we should be so long returning. Under way at 8.30, with reefed sail to accommodate invalids. Heavy snow and thick fog. Cleared a little in the forenoon. About 3 miles N.W. of Peculiar Hill, where the low shelving land of pebbles and soil meets the ice, the latter is formed into an enormous roller with a perpendicular face from 20 to 28 feet in depth, on its inshore side, and extending some hundreds of feet in length. I mistook this for a ravine on my outward journey, and gave it a wide berth. This seems to have been caused by pressure from a westerly direction, and appears as if the floe had been forced up bodily on the gradually sloping land. In the next bay on the other and east side of the point we are about to round (Cape Alexandra), it is difficult to make out where the ice ends and the land begins, as although there are undoubted ice rollers within 50 yards of the land, the one blends with the other without the signs which exist on its western side.

Tent + 42°
S.W., 6, o. f. z. s.
Air + 20°

Halted for lunch at 2 P.M. After lunch, I left the sledge to seek the depôt, the weather being quite thick enough to mistake the position. My way took me across low land, on which were several patches bare of snow. This in itself was a novelty, and I carefully searched in all directions for something or anything that might be worth bringing away, without success. About 4.30 P.M., sighted the depôt quite close, and on the arrival of the sledge we found it untouched. Not a track of any description round it. Just as we had packed the sledge the wind all went, and the fog came down thicker than ever, obscuring everything for the rest of the journey.

S.W. 1.2, o. f. s. q.

Camped at 7.30 P.M., and all enjoyed a full allowance of biscuit, notwithstanding the flavour of the black bag was superseded by an infinitely stronger one of gutta percha.

Crew in first-rate spirits.

Made good, $7\frac{1}{2}$ miles.
Marching, 9 hours.
Lunch, $1\frac{3}{4}$ hours.
Depôt, $\frac{1}{4}$ hour.

Have divided the 4 days' biscuit to last 7 days, about 8 oz. a day per man.

Sunday, May 28th.

Fifty-sixth Journey. 4 days' provisions. Cook at 6.35 A.M. A dull, foggy morning. Loom of the land only visible. Snow bunting came at breakfast. Read the Morning Service before starting. Under way at 9.15 A.M. Travelling very heavy through the newly-fallen snow. Camped at 8 P.M. Snowing, and very thick.

Tent + 44°
Southly. 2, o. c. s.
Air + 18°

Made good, $5\frac{1}{2}$ miles.
Marching, $9\frac{1}{4}$ hours.
Lunch, $1\frac{1}{2}$ hours.

After an impartial trial, the men have all reverted to their moccasins in preference to duck boots, the latter being found too rigid about the soles. All things considered though, I am in favour of the duck boots at this mild temperature.

Air + 11°

Monday, May 29th.

Fifty-seventh Journey. 3 days' provisions. Cook at 5.40 A.M. Under way at 8.15 A.M., steering S.S.W. by compass. Very thick.

Tent + 45°
Calm, o. f. s.
Air + 8°

Cleared a little at luncheon.

Bearings :—

Cone, Ward Hunt Island	N 149°	45′	E.
Peculiar Hill	N 19	0	E.

Crossed a fox track, running from the island to the main land. Camped at 7.30 P.M. by the east extreme of the island.

Calm, c. f.
Air − 2°

Have shaken out the reef in the tent, the increased space is much appreciated. We have had a very hard day's work, the travelling not at all good; snow soft and often deep, and miserably thick weather nearly all the journey.

Made good, S.S.W., 5 to 6 miles.
Marching, $9\frac{1}{2}$ hours.
Lunch, $1\frac{3}{4}$ hours.

One of the crew was saying he thought he had gained weight. "Yes," said another, "one would think so, to look at the size of your legs."

Tuesday, May 30th.

Fifty-eighth Journey. 2 days' provisions left. Cook at 5.40 A.M. Cape Albert Edward visible at times. After breakfast, I left Good to begin the march, and walked to the island, intending to go up the cone. Had a hard clamber up a steep slope on the south side of the island, which was covered in deep soft snow, and reached the top of a ridge about 600 feet above the ice, and which runs to the west in the direction of the cone. I found this nearly bare of snow, and composed of small stones and earth, similar to the small island (Crozier Island), in James Ross Bay, and also the low projecting spits, whenever I could actually determine they were land at all. Vegetation was fairly represented as regards quantity, in the poppy, saxifrage, and small tufts of grass. I saw no actual tracks of animals, but hares had evidently visited the locality, though not recently. One or two snow buntings were flying about.

Tent + 42°
Calm o. c. m.
Air + 19°

The wretchedly thick weather rendered it useless my going up higher, nor could I see a single point or portion of the bay to get bearings, &c., which I wanted particularly.

The island, as far as I have seen, appears to be formed of small rubble, &c. There is no sign of a cliff, except at the N.W. end, the rest being very rounded. Like Crozier Island, and the low cushions off the capes, it is steeper to the westward, and low and shelving to the eastward; and to whatever their formation may be due, they resemble one another in so many ways except size, that their existence may very probably arise from the same cause.

Camped at 7.30 P.M.

Air + 14°

Travelling rather better, but the journey is not a very long one. The men are regularly done.

West, lt. air, o. s. f.
Temp. + 13°

Made good, 5 miles.
Marching, 9 hours.
Lunch, $1\frac{3}{4}$ hours.

Our whiskers, moustaches, and beards are very much lighter than their natural hues, and their delicate "golden tint" imparts an air of cleanliness to our features, which much require something of the kind to do away with the sooty and begrimed appearance of our stearine-smoked countenances.

Wednesday, May 31st.

Fifty-ninth Journey. 1 day's provisions. Cook at 5 A.M. Tent fearfully hot. Sun shining when cook was called, but our march began at 7.30 in the same hopeless grey mist, which appears to be the normal state of the atmosphere in this neighbourhood.

Tent on waking + 55°
After cocoa + 62°

Snow soft, and the sledge dragging very heavily, although assisted by the sail part of the journey. Heavy snowstorm began at 4 P.M., and lasted till we got to sleep. Camped under Cape Albert Edward at 7 P.M.

Air + 20°
S.W. 3, o. f.

Made good, $6\frac{1}{2}$ miles.
Marching, $9\frac{3}{4}$ hours.
Lunch, $1\frac{3}{4}$ hours.

Thursday, June 1st.

Sixtieth Journey. Roused cook at 5 A.M.

We drank the last of our cocoa this morning. We are still 25 miles from the depôt, and I am getting very anxious, as day by day we camp, without getting as far as I had every reason to expect, with so light a sledge. It is not from want of trying our utmost.

Tent + 42°

Under way at 7.45. Travelling very bad. The heavy snow, which began yesterday, continues without the slightest cessation. Regular autumn experience, everything wet, heavy, and uncomfortable. Hoisted the sail. Steered by compass. During the day Good became thoroughly ill from over-work. With a little sal volatile, he recovered sufficiently, after a short halt, to resume his old place on the drag-rope. Another short journey, and at this rate, we shall be hard up for provisions. Drip soaking through the tent from melting snow in great quantities.

Air + 30°
S. W. 3, o. f. s.

Air + 32°
Heavy snow.
Tent + 55°

Made good, 4 miles.
Marching, 9 hours.
Lunch, $1\frac{3}{4}$ hours.

Friday, June 2nd.

Sixty-first Journey. Called cook at 4.40 A.M. Still snowing heavily, and thicker than yesterday, if possible. Overhauled provisions. No more bacon. Reduced biscuit

Tent + 55°
At Breakfast + 62°
Air + 34°
Calm s. f.

to $\frac{1}{3}$ allowance, and finish potatoes and sugar to-day. $4\frac{1}{2}$ days' pemmican, plenty of tea, rum, and fuel remain for 4 days.

Under way at 7.30 A.M., our weights being very materially increased by the thawing.

Travelling all day, through most abominable and clammy, clinging, snow, about 18 inches deep. About an hour after starting halted, and lightened sledge of everything we could spare, keeping an under flannel and pair of drawers only in the knapsacks. As yesterday, obliged to halt for Good, who pulled till he became thoroughly exhausted and unable to move. I find the sal volatile very beneficial in many ways now.

Camped at 7. Snowing, and very thick.

Made good, 3 miles. (Constant "one, two, three, haul.")
Marching, 9 hours.
Lunch, $1\frac{3}{4}$ hours.
Packing, &c., $\frac{3}{4}$ hour.

Air + 33°
Calm, s. f.

Very warm hauling, off guernsies, bareheaded, and barehanded.

Tent + 55°

As I write now, some three hours after camping, the snow is pattering down, more like sleet or rain, rattling on the tent, a sound we are unwillingly accustomed to. Too thick to see the slightest sign of land, though we must be close alongside it.

Saturday, June 3rd.

Sixty-second Journey. Cook at 5.30 A.M. Snowing heavily, and just as thick as ever. Travelling very bad. Started with a light half load to make a road, and found it anything but easy work. Halted for lunch. Afternoon travelling the same, every bit of snow, which was falling in large flakes, thawed on the sledge as it fell, and rendered the consistency of that on the floe such that it formed powerful "brakes" all along each runner, the open spaces between the uprights being filled with solid blocks of it, which, with the sledge bottom dragging on the surface, brought the friction up enormously.

Passed a cape at lunch time, which I fancy must be Cape Nares; if so, we are a little nearer the depôt than I thought, so much the better. I think we would all vote for—40°, and clear weather again.

My medical inspection to-day is not at all favourable.

I. Sergeant-Major, bad legs, pain inside, short of breath, and very weak. (Excused from hauling).
II. Stubbs ditto (Excused from hauling.)
III. Mann, fairly well, but bad legs.
IV. Good, bad legs, constant exhaustion, and attacks of diarrhœa.
V. Doidge, very bad legs.
VI. Mitchell, bad legs, which cause him so much pain that I have often seen him go out of the tent at night, and heard him groaning as he rubs them outside on the sledge to prevent rousing out his sledge mates.
VII. Ayles, perfectly sound.

As to remedies, all require rest and increased food. We have not the latter, and cannot afford the former; so instead, I have ordered grog and tobacco to be knocked off in Stubbs' case, and the former to be taken *very very* weak by the Sergeant-Major. Have also given them half a Dover's powder apiece, as they always seem to get better for taking "something." Like all bluejackets, the stronger the effects on the system, the higher the opinion they entertain of one's medical knowledge and treatment. In this case, however, I must chance what they think of my skill, as they are not strong enough to stand the effects of what they might otherwise take with impunity.

Made good, $3\frac{1}{2}$ miles (Half-loads.)
Travelled, 9 miles ,,
Marching, $10\frac{1}{4}$ hours.
Lunch, 1 hour.
Whole load advanced, $5\frac{1}{2}$ hours.
Packing, $1\frac{1}{2}$ hours.

Sunday, June 4th.

Tent + 60°
Air + 31°
Calm, fog, lt. snow

Read Morning Service before marching. Under way at 11.15 A.M. Snow nearly done, but still a thick fog. Half-loads as yesterday. We were cheered at starting by a clear view of Cape Columbia and Cooper Key Mountains, together with a half-willing sun, and a bit of blue sky overhead. Shortly after, a light easterly wind, and a fall in temperature to + 25°, led me to hope for fine weather. No such luck. Ere an hour was over, everything was wrapped in the same dull, hopeless fog.

Proceeded until 2, then unpacked, and while sledge returned I walked on road-making. My journal shows me I here indulged in a fit of "the blues," which, under

the circumstances, was perhaps rather to have been avoided. I write what I find jotted down, as I sat alone, having returned to the load to cook the lunch. "If anyone wants to find out the extent to which their spirits will bear up against "the blues," let him be alone in a dense fog in the Arctic regions, in charge of six weak men, and one who must give in shortly; bad travelling, where good was experienced before, a minimum of food; let him see the anxiety of the men to get on quickly, and their utter inability to do so. It is not cheering. Light a pipe, and go to meet them."

At last they hove in sight, after 4¼ hours' absence, the made road rendering the travelling easy. Lunched, and under way with the whole load along the road I had previously made.

One of the party this afternoon so hampered our movements on the drag-ropes by swaying about, I ordered him to fall out and follow the sledge. On my looking back half an hour afterwards, he was not in sight, so, leaving the sledge to go on as it could, I returned to find out what was the matter. I found him some little distance back, lying on the snow face downwards, and at first thought he had fainted. Such I found not to be the case, and some mild persuasion induced him to reach the sledge again. Under ordinary circumstances he would not have been up to the work, here I was compelled to make him up to it, or nearly so.

The Sergeant-Major became quite exhausted during the afternoon, which caused another halt. We ultimately camped abreast a cape with a low point off it, which proves the east extreme of a bay of which Cape Nares is the western point.

From occasional glimpses of the land to-day, we have been crossing this bay, the extreme depth of which I have not seen, as it appears to run up as a small inlet round a point 6 or 7 miles south of Cape Nares. From this point the land trends to the cape off which we are camped, and thence round to Cape Columbia, distant about 6 miles from us now.

Made good, 4 miles.
Travelled, 7 miles.
Marching, 10¼ hours.
Lunch, 1½ hours.
Packing, &c., ½ hour.

Weather has cleared a little.

Monday, June 5th.

Sixty-fourth Journey. Cook at 9.30 A.M. Glorious sunshine. Social barometer risen a good deal. Biscuit remaining, 4½ lbs., ⅔ of a day's allowance; divided it into 7 equal parts, to last till to-morrow night. Under way at 12.10. Snow in better condition; getting on very fairly, Serjeant walking behind the sledge. Lunched at 6.15. Rounded Cape Columbia at 10.30. I had been looking forward all the journey to going up Cooper Key Peak, and getting a grand view over the Palæocrystic Sea. Dense fog prevented it on the way out, and other circumstances, scarcely so pleasant, prevent it now. The good travelling immediately round the cape remained as before, so I left the sledge to go on, and went some 300 or 400 feet up the steep face of the cliff, collected a few specimens of the stone, a poppy, &c., and had a good view of the hummocky ice outside, which latter seems heavy and difficult. Camped shortly after 12, about ¾ mile east of Cape Columbia.

Tent + 56
Air + 17°
Calm, b. c.

Air + 17°
Calm, b. c.

Made good, 6½ miles.
Marching, 10½ hours.
Lunch, 1½ hours.

Put a mustard plaster on Mann's chest.

Tuesday, June 6th.

Sixty-fifth Journey. Roused cook at 10. A fine day for picking up the depôt, and I spent a good part of the night in getting my eyes into order, which have been very painful from time to time, and especially the last few days. The india-rubber ice goggles (Surgeon-Major Wyatt's), when once filled with snow, are very comfortable things, but the actual operation of filling them is ill adapted to cold climates, being somewhat lengthy and requiring much patience. I found their chief use in tying them over the eyes at night, *without* snow inside, when from their filling the socket of the eye, and exercising a gentle pressure on the eyelids, they answered much better than a bandage.

Tent + 54°

Although quite clear, I was afraid another fog might come on before the sledge could reach the depôt, so I started off ahead, that we might have a track to go by in the event of its doing so. After a walk of 2½ hours over fairly hard snow, which I thoroughly enjoyed, I reached the depôt, and, to my great relief and thankfulness,

found it untouched and in good order, the bare fact of which seemed to lift a load of responsibility off me. Hare and lemming tracks and fox tracks were about.

I had reason to congratulate myself on having reached the depôt, for a quarter of an hour afterwards a fog came on as thick as ever, and we would not have reached it to-night. As it was, I opened the potato tin, took sugar and potatoes, filled pockets with biscuit, and retraced my steps. Met the sledge, following my track, and the men rather anxious as to whether I had beat the fog or not. We camped about 300 yards from the depôt, and revelled in biscuit and luxury! A short march.

Air + 20°
East 2, o. f.

Made good, 4 miles.
Marching, 5 hours.
Depôt, packing, &c., 2½ hours.

The North Cooper Key Peak terminates in Cape Columbia, and the steep land which lies 5 or 6 miles along the coast east of it. Off the latter extends low and undulating land, tapering to a sickle point, on which is our depôt On the steep coast, about 150 to 200 ft. above the "ice-level" (if there be such a thing) is a remarkable looking snow-cliff, as if caused by a snow or ice-slip, and something similar to the small glacier off Cape Fanshawe Martin.

Wednesday, June 7th.

Air + 23°
N.E. 2, b. c.

Sixty-sixth Journey. 7 days' provisions left. Roused cook at 5. A very splendid day, can see to within 30 miles of the ship, a fact I have impressed on the men, with good effect.

The travelling being hard, I walked on to Cape Aldrich to try and find a place to leave a cairn, leaving the sledge to follow, bringing on the empty pemmican and bacon tins, &c., for the purpose. I found no conspicuous place for a cairn, the cape being very steep. Observed a large bird some distance off, it flew something like a gull.

Lots of snow buntings about the land. I got about 500 ft. up the cape, part of the way on hands and knees; the ascent was not easy, as great numbers of the stones were loose, and went thundering down, slipping out of little beds of ice in which they had ensconced themselves as the snow had thawed.

A high range of hills runs about S.W. from Giffard Peak, and trends gradually round to the westward, circling about Ayles Bay, and is separated from the Cooper Key Peaks by gradual and sloping land rising to 600 ft., over which I daresay a passage would be found cutting off Cape Columbia, by passing well to the south and west of it.

Bearings:—

Cape Hecla	214°	30′
Cape Joseph Henry	220	5
Observation Peak	221	50
Peak over Colan	222	30
Giffard Peak	231	45
High Peak inside Giffard	245	0
Another	261	40

Camped at 7, about 1 mile W.S.W. of Point Stubbs (*i.e.*, "Challenger"). A curious afternoon, sudden and very thick fogs, breaking occasionally to give us an hour or so of magnificently clear weather.

We are all very agreeably surprised at the state of the travelling, which has vastly improved in our absence. The snow is fine grained, and 8 to 10 inches deep.

I have heard many mild complaints of late as to the effects of the pemmican, it appears to rise on the men's stomachs a great deal; with Good it has been often the case, but latterly every one, except Ayles and I, suffer more or less. I attribute it to weakness. Had we had the good fortune to procure game, I daresay this would not have been experienced; but where game is not to be got, I believe an occasional change to preserved meat might be beneficial. Another symptom which has become apparent yesterday and to-day with 4 of the crew, is tender gums, which I hope may be due to the increased allowance of biscuit. Hitherto, while rather short of it, we always soaked it in tea or pemmican to make it go farther, now we eat it, or some of it, without softening it. I hope it is not scurvy, though Doidge asked me the question to-day, "Is scurvy ever got while sledging, sir?"

I answered in perfect truth in one sense, though not in another, "No," and attributed everything to the hard biscuit. All hands have been in the drag-ropes to-day.

Air + 20°
N.E. 1.2, b. c. f.

Made good, 7 miles travelled.
Marching, 9½ hours.
Lunch, 1½ hours.

Thursday, June 8th.

Sixty-seventh Journey. 6 days' provisions. Cook at 5.25. Strong breeze from the N.E. during the night. Tent + 43° Air + 35° N.E. 3, fog.

Under way at 8.15. Snow bad for travelling, it appears to change marvellously quickly with the temperature.

Could not get on at all, halted, unpacked, and loaded to 300 lbs. This was nearly as bad. Took everything off the sledge except the cooking gear, and a few small things.

At 10 Stubbs came to me with swollen testicles, having come on the night before last. I extemporised a suspensory bandage from a blue comforter, and excused him from the drag-ropes. Shortly after, the Sergeant became out of breath, and too weak to get on, so I sent him back ready for the second load. After taking a spell, finding Ayles and I could get on quicker by ourselves, I sent them all back, while he and I dragged the sledge and tramped down a road. Halted, unpacked, and back for the remainder of the gear, which came up slowly but surely. After lunch, started with whole load, snow a little crisper. Stubbs following in rear. Got along tolerably for half an hour, then came to a dead stop. Canted sledge on to the medical box, and scraped the runners, which in some places had as much as 3 inches thickness of ice on them underneath, which assisted in enlarging the tremendous cakes of snow the sledge forced before it. A second time we did this, and at the end of an hour we had advanced just 10 yards. However, we got on much better afterwards, and camped at 8.

Made good, $4\frac{3}{4}$ miles, S.W. $\frac{1}{2}$ S. (comp.) Air + 34° East 2.3, o. f.
Travelled, 7 to 8 miles.
Marching, packing, &c., $10\frac{3}{4}$ hours.
Lunch, 1 hour.

Friday, June 9th.

Sixty-eighth Journey. 5 days' provisions. Cook at 7.20. I ought to put Stubbs on the sledge, the Sergeant ought to be put there too, but there is not strength enough left to drag them. Air + 33° N.E. 4.5, fog

Under way at 9.35. Came across numerous deep places, which cost us much trouble to get through. I found it a good thing dragging the sledge over the shovel occasionally. Pitched tent for lunch, and gave Stubbs warm water for bathing purposes. He is perfectly easy, so he says, though I daresay he does not feel as well as he wishes to make out, as he puts a very good face on things in general. After lunch, the Sergeant and Mann both gave in, leaving 5 of us on the drag-ropes, Ayles and I becoming permanent leading men. Did a very good afternoon's work, considering all things.

Made good, S.W. $\frac{1}{2}$ S. 6 miles. Air + 27° N. 1.2, o. c. f.
Marching, 10 hours.
Lunch, $1\frac{1}{2}$ hours.

It will be observed, that it is the bluejackets who hang out, the marine, shipwright and blacksmith being disabled.

We had the tent pitched by the time the sick came up. Put mustard plaster on the Sergeant's chest. Hot water and Gregory's mixture for Stubbs. Gums very tender, which prevents the allowance of biscuit being eaten.

Saturday, June 10th.

Sixty-ninth Journey. 4 days' left. Roused cook at 7.20. Under way at 9.55, three invalids following. Poor Stubbs requires all his courage and endurance. Several times as we went on, Ayles and I sunk nearly up to our hips, but occasionally we came to long stretches of good hard travelling, and we camped abreast Point Moss, at 9.30.

Sleet falling at intervals. The Sergeant loses breath with the least exertion, and I am afraid is getting worse, rather than better, although we ease him off all the work we can, except his turn at cook. Air + 28° N.W. 1.2, o. c. f.

Made good, S.W. $\frac{1}{2}$ S. 6 miles.
Marching, $9\frac{3}{4}$ hours.
Lunch, $1\frac{3}{4}$ hours.

Sunday, June 11th.

Seventieth Journey. 3 days' provisions left. Cook at 7.50 P.M. We are looking forward to news from the ship as we draw near our depôt. Something to give us a Tent + 60°

change to the conversation, which tumbles into the same groove pretty well every night. Read the Morning Service.

Under way at 11. Calm and snowing. Travelling as yesterday; several "dry hauls" during the march. Mann, who had been walking in the rear of the sledge, came to me with a complaint similar to Stubbs', which I treated in a similar way with suspensory bandage, and warm water bathing.

After lunch, the travelling became much harder and better, which enabled us to make a good journey, which brought us abreast the Colan depôt at 11.30, all very fagged. I walked up to the depôt while the tent was being pitched, with the intention of getting the letters, &c., but I found Lieut. Giffard had erected such a magnificent structure, that I could make but little impression on it, and contented myself with his note, which I found attached to the staff.

There were several hare tracks round the cairn. Good is thoroughly knocked up again, and can eat nothing.

Air + 31°
Calm. o. c. f.

Made good, 5 miles.
Marching, 10½ hours.
Lunch, 2 hours (sick to treat.)

Monday, June 12th.

Tent + 51°

Seventy-first Journey, 10 days' provisions. Cook at 9.30 P.M. Left invalids in the tent. Remainder of us up to the depôt, which was all right except the lime juice jar broken in the neck. Fortunately none of the contents were spilt. Packed sledge, read news to the crew. Under way at 2.30. All hands glad to hear "Discovery" was all right, and communication established. Their success with the musk ox caused our mouths to water. We feel the increased load very much, the sledge is heavier by 400 lbs., which, with the constants, brings up the total to 1,000 lbs., or a load of 200 lbs. per man. Halted for lunch at 5.30.

Air + 25°

I have plenty of provisions now to go a trip down Clements Markham Inlet, which I had hoped to make, but we have quite as much as we know what to do to get back to the ship in decent time without going an inch farther than absolutely necessary.

In sun + 45°
Tent + 60°
Calm, b. c. ¾

Made good, 3 miles towards Sail Harbour.
Marching, 7 hours.
Depôt, 2½ hours.
Lunch, 1½ hours.

Observed 3 long tailed "skuas."

The sweet pemmican is very much liked as a change, but we have preferred a mixture of sweet and plain, when we could get it. To-morrow, if fine, I leave the invalids to recruit, and have a day up the inlet. It has been foggy all day, except now, when it has partially cleared.

Tuesday, June 13th.

Seventy-second Journey. 9 days' provisions. Cook at 9.30. Breakfasted off 6 lbs. of preserved meat which had been forwarded with the depôt. Everyone relished the change, and ate well.

Snowing heavily, and a dense fog puts an end to my only chance of getting down the inlet. We have not been fortunate in our weather as far as fog is concerned. Packed sledge, but detained till 3, when a slight clear enabled us to get ahead. Took the collapsible boat off the sledge, fitted her with drag-ropes, and put sextant and medical box in her. Gave her in charge of the 3 bad invalids, who managed to keep together and get along slowly, but making us lose a great deal of time by waiting for them. At 4.30 fog came on again very thick. Halted and pitched tent for lunch, advising the men to sleep while they could. Heavy snow falling. Observed a long tailed skua. Under way at 7. Got on very fairly till 8, when Good became suddenly short of breath, nearly fainted, and was in fact attacked exactly the same as the Sergeant.

Air + 32°
fog.

There appears to be utter inability to get breath, no pain, and no difficulty to speak of in breathing when at rest. Pulse in both cases fairly strong and regular. Appetite fair. The least exertion brings it on. Bowels in good order. I am half afraid we shall not get on board without assistance, for which either Ayles or myself will have to walk in.

Camped at 8. A regularly lost day, one way and another.

Made good, 1½ miles.
Marching, 2½ hours.
Lunch, 1½ hours.
Detentions, 3½ hours.

Notwithstanding the sickness, the consumption of food to-day has been very large,

12 lbs. preserved meat, potatoes, 6 oz. bacon, 2 pints tea, 1 pint cocoa, 1 lb. biscuit (the atter principally soaked).

Good and the Sergeant are both asleep, their breathing is somewhat uneasy, the atter breathes 40 to 50 times a minute, Good from 25 to 30, both irregular. Stubbs nd Mann are getting slightly better, but the swelling, reduced in the tent, invariably eturns on the march.

Wednesday, June 14th.

Seventy-third Journey. 8 days' provisions. Cook at 10.35. We were delayed a ew minutes in getting under way, by Mitchell, who was taken suddenly faint when ssisting to place the tent on the sledge. Gave him 40 drops sal volatile. Tent close under ridgerope + 82°

Under way at 1. Order of travelling as yesterday. Snow hard and good, seldom etting one in above the ankle. Spelled at 2, and I walked back to help the invalids up ith the boat. Under way at 3, halted at 4, pitched tent for lunch and to wait for nvalids. Stubbs walking by himself, having been ill, thrown up lime juice and a little lood. Gave him a little weak rum and water. Air + 28° North, lt. air, o. c. m.

Made good way again after lunch, until within a mile of Sail Harbour, when we came nto the most villainous snow, which caused nothing but standing hauls. In this our omfort greatly depended on keeping way on the sledge, and our struggles to do so ould have been ludicrous to anyone not engaged in them. Ayles and I leading, often ot in nearly up to our middles, we could not afford to stop hauling, which we continued n hands and knees, until we got on to firmer footing, or came to a helpless standstill. or us it was bad enough, but when the other 3 went in, separately or altogether, they ad barely time to throw themselves clear of the runners. Camped at 11.40. Air + 30° Calm, o. m.

Made good, $4\frac{1}{2}$ to 5 miles.
Marching, 9 hours.
Lunch, $1\frac{1}{2}$ hours. Air + 42° In tent + 60° Calm o. m.

Ayles has not been very well to-day, the effects of being trodden on by n invalid in getting out of the tent last night. I could ill afford to lose his rvices.

During the day I got a misty view down Clements Markham Inlet. I could see as r as 15 miles, but not make certain of what was at the bottom of it. Observed Lieut. iffard's cairn opposite Gable Cliff, on Hamilton Bluff. It is easily distinguishable with glass, and stands in a very conspicuous place.

Bearings during the day :—

Cape Hecla	180° 0′
Sail Harbour	218 0
High Peak in Hecla range, above Gable Cliff ..	244 30
High Peak in same range as Cape Colan ..	4 30
Peak above Colan	24 0
Cape Colan	40 40

From the point opposite Gable Cliff on the west side of Parker Bay, a range of hills etends in a W.S.W. direction, forming the south shore of Clements Markham Inlet. They ope rapidly to the floe, and in some cases terminate in steep cliffs, with ravines between. Ive miles to the W.S.W. the range is broken into peak and round-topped hills. The eather prevented me seeing the end of this range, or where it is shut in by another nge, which, beginning at Cape Colan, runs up to the peak above, and gradually curves und into the inlet.

The peak above Colan is about 1,800 feet high. Cape Hecla is a bold looking cape, t the hills above it, and between it and Sail Harbour are not more than 800 or 0 feet high. Those south of Sail Harbour are higher, and the peak over Gable Cliff about 1,500 feet high.

Thursday, June 15th.

Seventy-fourth Journey. 7 days' provisions. Cook at 10.55 P.M.

Mann and Stubbs better. Tent + 67° Top of tent + 79°

Started at 1.50 after I had walked in all directions and in vain to find a decent ad. I was obliged to utilize the "dead weight" of the invalids in the numerous nding pulls between our camp and Sail Harbour. After reaching the latter we got o with but little trouble, being delayed only by the sick lagging behind. Waiting as we had to in a dense fog, and with a cold east wind, was not comfortable after the olent perspiration brought about by our exertions. Halted at 6 for 2 hours. Pitched t, treated invalids, &c. Under way at 8 to cross Parry Peninsula, but found the hl too steep for the small amount of strength we could command. The strongest of us

carried the gear up, and in $1\frac{1}{4}$ hours had advanced our whole baggage about $\frac{1}{4}$ of a mile. Packed sledge, invalids following with "tender." The fog lifted a little as we camped, and I found I had hit off the land about $\frac{1}{2}$ a mile too far to the south.

I was obliged to camp a little earlier than I intended on account of Good, who became utterly exhausted.

Meridian altitude :—60° 40′ 30″. I.E.—5′ 40″. Lat. 82° 50′ 0″ N.

Bearings :—

Peak above Colan	25°	15′
Passes in same range	20	30
Giffard's Cairn	8	20
Joseph Henry Peak	201	30
Cairn on Crozier Island	178	20

Made good, 3 miles.
Travelled, 4 miles.
Marching and porterage, $8\frac{3}{4}$.
Lunch, 2 hours.

The land about Joseph Henry appears very high after coming from the westward, and the cape is a far finer headland than any we've seen. From our camp the hummocks are fearful to look at, being thrown out in contrast with a very dark sky behind them.

Tent + 46°

Friday, June 16th.

Seventy-fifth Journey. 6 days' provisions. Roused cook at 12.20, actually A.M. of the 17th.

Tent + 62°
Air + 26°
Calm b. c. f.

Under way at 2.55, and proceeded *down hill* with standing pulls through deep soft snow. At last we reached the ice in the small indentation on the east side of Parry Peninsula, with very good travelling, thence up another small rise which we got up a few yards at a time, by constantly waiting for some one or other to recover breath. However, all things come to an end, and on reaching the top of the hill, I was glad to turn the invalids off to their boat again. Sighted Giffard's small cairn, built for dog notice, which I visited, demolished, and found nothing but Giffard's slip of paper, *May 14th.* Halted for lunch at 8.30.

Invalids arrived before tea was ready. Under way at 10, and fell invalids into the drag-belts at the Sergeant's request; found they could not get along. Commissioned the tender again, and proceeded across James Ross Bay for $2\frac{1}{2}$ hours' *excellent* travelling. Halted $\frac{1}{2}$ an hour for invalids, then on for another $\frac{3}{4}$ hour, during which both Good and Doidge were each once in a half-fainting condition, unable to stand without support. As there was no hope of getting the invalids on, camped at 1.45, having got a great deal farther than I had dared to hope.

N E. 1.2, b
Air + 20°

Notwithstanding our spell in the afternoon, the invalids did not reach the tent till 5 o'clock, by which time it was pitched, and supper ready. A lovely evening.

Made good, 5 to 6 miles, S.S.W. $\frac{1}{2}$ W.
Marching (including detentions), $9\frac{1}{4}$ hours.
Lunch, $1\frac{1}{2}$ hours.

Bearings taken before starting this morning :—

Joseph Henry Peak	193°	50′
Cairn on Crozier Island	86	35
Extreme of Snow Cliffs	189	50
Cape Joseph Henry	191	30
High Mountain	288	20
S.E. pass of what appears to be Gap Mt. ..	293	30
Cape Hecla	73	15
Guide Hill	294	55
Observation Peak..	205	0

Saturday, June 17th.

Tent + 62°
„ + 70

Seventy-sixth Journey. 5 days' provisions. Roused cook at 12.30. mid. Started off the invalids ahead, while we struck tent, packed sledge, &c.

The travelling in splendid order.

Meridian altitude (under the pole), 32° 12′ 30″. I.E. — 5′ 40″.

Under way at 4 A.M., and overtook the invalids toiling drearily along at 5.40, by which time we had cleared James Ross Bay, and begun the overland route immediately south of Observation Peak. We are singularly fortunate in the weather; there is a

dense fog everywhere except in the valley for which we are steering, some curious eddying of the light air keeps it from settling there. Air + 21° N.E. lt. air, b. c. f.

Good and Doidge are at the drag-ropes, but not pulling an ounce; they are very plucky, but utterly unable to do anything.

With our small power, we had a very heavy pull up the incline, the snow on which was, however, in beautiful condition, hard and slippery enough to cause Ayles and myself often to lose our footing; had it not been so, I really do not know what we could have done.

Halted for invalids at 7.10; under way at 7.35 (this is the second compulsory halt). Crossed a ravine, and hauled up a moderately steep hill or spur between Observation Peak and the next hill south of it. Halted at 8.40 for lunch and invalids. Dispatched invalids ahead—it is dreary work, such constant waiting. Not being able to leave the sledge, I cannot go ahead to see the road. I hope we shall come out all right, but to me the route is new, and whether Giffard tried it or not I do not know. Under way at 10.30, and proceeded as in forenoon, stopping and waiting continually. Camped at 2, and I walked on to see the route, which cost me 3 hours' heavy walking. I was well repaid by finding it all clear, and much preferable to the longer and more tortuous journey by Guide Hill. Sighted Conical Hill, and having ascertained my whereabouts, returned to the tent at 5, very tired and with a splitting headache, the effects of a very powerful sun. Invalids arrived 5 minutes after me, having occupied $6\frac{1}{2}$ hours in walking a distance we hauled the sledge slowly in $\frac{1}{4}$ hours.

We have actually marched with the sledge $5\frac{3}{4}$ hours, but it is 13 hours since we got under way; the 7 hours are detentions. Had we but one invalid, or perhaps two, we could put them on the sledge. As it is, they must walk, or give in altogether, in which case I must send Ayles on from View Point Depôt, trusting in his intelligence, strength, and endurance, to reach the ship and ask for assistance. When I spoke to him on the subject, he expressed his readiness to start, and I have every confidence in the man; he has been with me both in the autumn and spring, and I cannot speak too highly of him. Having the blessing of health, his assistance to me throughout has been and is invaluable, and the anything but cheering circumstances in which we are placed enables me fully to appreciate it. I keep an anxious look-out on the weather, dreading the thaw which must shortly set in, and which will soon render the route between View Point and the ship very bad, if not impassable.

Made good, $3\frac{1}{2}$ miles (overland).
Marching, $5\frac{3}{4}$ hours.
Lunch and detentions, 10 hours.

Sunday June 18th.

Seventy-seventh Journey. 4 days' provisions left. Cook 12.50 (A.M. 19th.) Read the Morning Service. Rejoicing in a cold morning, but it is thick and inclined to snow. It is fortunate I walked ahead last night, as we followed my tracks, slowly though, as usual. Doidge collapsed soon after starting, and having brought him to with a strong dose of sal volatile, left him to come on with the others, while Good, Mitchell, Ayles, and I marched on with the sledge. Poor Good complaining bitterly we were going too fast, and Mitchell scarcely able to put one foot before the other. Halted for lunch and invalids, and under way at 11.20 again. The crew showed such evident signs of giving way to their ever-increasing sickness, and that before we could reach View Point, I took Good on one side, and told them they must all try their hand at dragging again. I explained the actual necessity there was for reaching our next depôt, and that, failing to meet any one there, I should communicate with the ship. To farther impress this on the crew, I loaded the collapsible boat to 130 lbs., and absented myself with it from the party for over an hour, leaving them to follow. I was able to do this without getting far away, as the fog was very dense. Air + 21° West 3, o. g. f

Having hit off the ravine just north of View Point, I returned to the sledge, and found them hauling 5 or 6 yards at a time, and then halting a few seconds to recover breath. The poor fellows were all struggling, and fully alive to the effort they had to make. Nothing could exceed the patience and endurance they showed, and I fell in with them, and we reached the boat, and camped at 2.30 P.M., the whole of them, except Ayles, thoroughly done up. Under these circumstances pitching and cooking comes heavy. We divided those duties, keeping to the usual turns for cooking, as often as it was possible for the proper man to take it, but our cuisine suffered. Air + 23° Westy. 2.3, o. f.

Made good, 3 miles (overland).
Marching, $6\frac{1}{4}$ hours.
Lunch and detentions $3\frac{1}{2}$ hours.

The route overland which we have come is very good, being a straight course, nearly due east, up the valley behind Observation Peak, and then turning E N.E., over a gentle incline, until you come upon a well marked ravine, following which brings us out close to View Point.

Passed one ermine, one fox, one hare tracks. The men are eating so very little pemmican, I am going to try some for luncheon to-morrow, as the forenoon journey and fresh air may assist their appetites. I am in hopes they may be induced to eat something somehow, and it may be that the whole journey, combined with the necessarily hot and disagreeable air in the tent at the end of the day, is against their doing so.

We finished our compressed tea last night; the ordinary service tea we do not like so well, and the allowance is just sufficient, whereas a corresponding weight of the former has admitted of saving from day to day, and has stood us in good stead, when we had no cocoa. Were it necessary, the ration of compressed tea might be reduced by $\frac{1}{4}$, and then be fully equal, if not superior to the other. Being in cakes, there is no possibility of going beyond the allowance, and everything that saves trouble in measuring out must be of a decided advantage. A strong breeze is setting in from the westward.

Colder on account of wind. West 1.2, o. f.

Monday and Tuesday, June 19th and 20th.

Seventy-eighth Journey. 3 days' provisions left. Cook at 11.45 (midt.) A great deal clearer than yesterday, and the wind gone down. Under way at 3 A.M. Travelling most excellent, fortunately, and the ravine taking us down, so as to admit of the sledge following, with the least possible strain on the drag-belts. As the Sergeant was exceedingly ill, and I did not like the look of him at all, we put him on the sledge, and I walked on with the boat well loaded. Mitchell, Good, Doidge, and Ayles came with the sledge. On coming to a little bit of level travelling, which required more strain on the drag-ropes, I got the Sergeant down, and supported him along while I dragged the boat at the same time. He could not move more than 5 or 6 paces at a time without stopping for breath, and even then he fell down in a dead faint, and remained so for some minutes. By this time the sledge was well ahead of us. I had the sal volatile in my pocket, and by placing a little in his nostrils, and opening all the gear round his throat, he ultimately came to, and in due course we reached the sledge, which had halted on missing us. The travelling now would not admit of putting him on the sledge, more especially as Stubbs was seized in the same way a few minutes after we got up. There was nothing for it but go on very slowly, waiting as they required, and urging on for the depôt and ship news; but the fact of getting the latter does not raise their spirits, although the actual fact of getting it has been more or less talked about all the homeward journey. At 7 came to View Point. Observed a staff placed in the snow by Dr. Moss, with a notice of the existence of the crevasse we had seen on our way out. It also gave us the intelligence that the Commander's party had passed; but no particulars, the latter being left farther on at the depôt. We were glad to hear of their safe return, but sorry they were before us, as we had half hoped to have met with some assistance from them. As events have become subsequently known, we should not have benefited one another by meeting. I found the snow on the hill so very hard and slippery, and at such an incline, that it was not possible to get round the Point by the land without great danger of the sledge and crew falling into a pool of water which lay at the foot, between a drop (perpendicular) of 8 to 10 feet on the one side, and a large grounded floeberg on the other. Much against our inclination we were obliged to take to the boiling, bubbly, soapsud hummocks. Halted for luncheon, and looked at the state of things through the medium of tea and bacon. I walked ahead, and picked a road for a couple of hundred yards, then back to drag, going ahead again while sledge halted till I had got a road a little farther, and so on, during part of the afternoon. Little by little we crept on, but every moment made our inability to go on for the ship without assistance the more apparent. "There's a silvery lining to every cloud," and never did one appear so welcome as that which came in the form of a shout from the hill above View Point, and the discharge of a gun. It turned out to be Malley, and what he thought of my proceedings I don't know, for with a yell of "Challenger," I disappeared back among the hummocks, and returned to the sledge where it was waiting for me to shackle on again. My news was received with a shout, and thinking it might be a shooting party, I promised them hare for supper. I then left them to pitch their tent, and walked in towards the shore. As I neared it among the hummocks, I met Lieut. May and Malley (A.B.).

On learning that they had been despatched to our assistance by Captain Nares, on his seeing the condition of the Northern Party when they returned, the relief to my mind I cannot describe. All difficulties seemed to vanish, and the very sight of

the fine healthy and "clean" appearance of our visitors, led me to look for a much more rapid and comfortable return on board than I have thought about for some weeks. I accompanied May to his tent at the depôt, while Malley went out to the men to lend them a hand in pitching their tent, and cooking, &c. As soon as possible we sent off Thornback, A.B., with medical comforts for their supper, and I cautioned both him and Malley about saying anything of the deaths which had occurred during our absence, fearing the effect it might have on the men. I was truly distressed to hear of the miserably wretched condition of the Northern Division, and of the death of my poor servant, George Porter, and Petersen, and I congratulated myself, and felt deeply grateful that we had arrived with all hands alive, if not well. Having arranged with May to send two hands to help us along in the morning, and that the depôt should be demolished, as a preconcerted signal to the Captain, I returned to my tent and found the social barometer had risen several inches; but I heard afterwards that Malley was received "with tears." The ox cheek and apple jelly were very much appreciated, especially the latter, which exactly suited the sore gums.

I found Good in a shivering fit, with diarrhœa, and generally upset; I suppose the excitement was too great. I gave him a Dover's powder, wrapped him up warm, and he was soon much more comfortable. I tried the pemmican for lunch to-day, as intended, but the very little extra that was eaten did not compensate for the time taking in the cooking.

Made good, 3 miles.
Marching, 6 hours.
Lunch, 2 hours.

Wednesday, June 21st.

Seventy-ninth Journey. 2 days' provisions. Cook at 7 A.M. Under way at 9.45, patiently hauling through villainous hummocks. On Malley and Thornback joining soon afterwards, I walked ahead to pick the road, and after having found one on to the high road to the ship, turned to the shore and reached May's tent. Packed dog sledge with provisions to carry us to Depôt Point, and started off; on reaching the edge of the shore hummocks, halted; left Self to pitch tent. May and I walked back to the sledge. Fell in, and floundered about at a great pace. Invalids (all but Ayles had fallen out) following more slowly. Reached the dog sledge. Pitched tent. Lightened sledge as much as possible. May returned with all this gear into View Point, on the dog sledge, while we pushed on after lunch.

Landed at View Point:—Coverlet, spare tent poles, pickaxe, shovel, ammunition, spare boots, 6 pairs old moccasins, and all provisions but three days—thus leaving about 80 rations. The dog sledge soon overtook us, and Self brought on the invalids by relays, two at a time. This plan we continued until we reached the ship; the dogs and their bluejacket driver doing their hard work splendidly. As I feared the inaction for the sick, I constantly made them do some walking. The only exception I made to the rule was in the case of the Sergeant, who we kept permanently on the "Challenger," but I had him off and on a few times during each day, and made him stand up supported, and feel his legs. It was now that we had good reason to observe the way in which my men sought to relieve the dogs by walking themselves. Mitchell did not get on the sledge at all, but pegged away with great pluck and perseverance. Camped at 9.30 P.M. On getting into the tent, the Sergeant fainted off. Brought him to. Stubbs' face very much swollen, and his mouth excessively sore. Reaction has set in, and the excitement of yesterday has given way to greater weakness and lowness of spirits. Regaled the crew with two pots of oysters, apple jelly, and egg flips, much to their satisfaction.

May doctored me with vinum opii.

Made good and travelled, 8 miles.
Marching, 9 hours.
Lunch, 1½ hours.

Calm b. c.
Air + 36°

Shifted quarters to May's tent. Malley and Thornback alternately sleeping in my tent.

Thursday, June 22nd.

Eightieth Journey. Called cook at 8.25 A.M. Just as we were about to start, I fancied I saw another sledge coming in our direction, so I took the dog sledge and drove off to meet what ultimately turned out to be an Eskimo dog (went adrift some time since) and an empty pemmican tin, among the hummocks. As I did not want my men to hear of poor Porter's death, and his grave was a short distance ahead on the floe, I sent Self on with the ostensible object of carrying the 5-man tent and baggage ahead first, but really to remove the cross which marked the spot. This he did, and returned to go on with the same work as yesterday, advancing the sick by fleets. As the Sergeant and

the collapsible boat do not travel well together, lightened sledge of the latter 58 lbs. After lunch, left 5-man tent behind, for which we sent back when invalids had been advanced across the floe. Directed Self to replace the cross over the grave, which was accordingly done.

Doidge on my sledge some part of the day, Sergeant taking exercise by riding on the dog sledge, and getting off among hummocks, but he fainted in doing so, so he and Doidge exchanged places.

Travelling very good, except latter part of the day, when the snow became soft and the sledge very dead in her movements.

It is thawing fast in the sun, but we did not pass through much sludge.

Cold wind. Wrapped Sergeant up as warm as possible. Stubbs fainted on the dog sledge. Self was equal to the occasion. Issued calf's-foot jelly and a glass of port, and 2 tins fowl, 1 sardines for breakfast. Ayles has shown his first sign of weakness of limb to-day; strength of will remains as before. His knee is rather swollen and stiff; he says he hit it against a hummock, but it is the increased pace at which we come. I know it taxes me to the utmost to haul with the men we now have.

S.W. 3.5, b. c.

Have bandaged and bathed Ayles' knee.

Travelled, 9 miles.
Marching, $8\frac{3}{4}$ hours.
Lunch, $2\frac{1}{2}$ hours.

N.N.W. 4.5 + 34°

Friday, June 23rd.

Eighty-first Journey. Cook at 10.30 A.M.; under way at 1.25. Order of travelling same as yesterday. Pitched tents for lunch, wind very cold and cutting. Finding two men and the 5-man tent was too much for the dogs, took all the gear on to "Challenger."

N.N.W. 2.3, o. c. Air + 34°

Arrived at Cane's Folly shortly after 7, and were welcomed by Lieut. Parr and Capt. Feilden, who cooked for us, and gave us what we had not tasted for many long days. We all ate heartily of hare and geese, which, with the port wine, made the invalids different men.

S.W. 4.6 Air + 35°

Parr kindly volunteered to shift the flag on Depôt Point, according to arrangement. The travelling has been heavy, "one, two, three haul," pretty constantly, and snow soft and sludgy, above the knee in places.

Travelled, 7 miles.
Travelling, 6 hours.
Lunch, 3 hours.

Saturday, June 24th.

Eighty-second Journey. Roused cook at 10.30. Under way at 2.30, having completed the sledge with $2\frac{1}{2}$ days' provisions, and got rid of all gear we could spare. Received 7 geese and 3 lbs. of bacon. Lunched off north end of Simmons Island at 8. After lunch, marched for the boats, which we reached after 4 hours very hard travelling, through sludge and pools in places. The dogs and Self had a very hard day, and the last fleet of invalids did not reach the tent till $2\frac{1}{4}$ hours after us. No fainting to-day, but the Sergeant is very, very weak indeed, and there is no visible improvement in the others. Ayles is better, but evidently touched with the malady. The travelling is beginning to get very bad, as you come to many places where the snow looks sound enough, but in which you sink down till you come to water underneath.

Travelled, 6 miles.
Marching, $8\frac{1}{2}$ hours.
Lunch, 3 hours.

S.W. 4.5 Air + 35°

Sunday, June 25th.

Eighty-second Journey. Called cook at 3.30 A.M. Under way at 7.15. Lunched in Ravine Bay, and started at 1.30, and reached the tents on Mushroom Point about 3 P.M. As we were now only 6 miles from the ships, and we had reason to expect good travelling, we rested for 3 hours in the tents already pitched, and I served out the remainder of the medical comforts, which was sufficient to give all the sick a very fair meal, then, after a short nap, we hauled sledges over the land, and got into the next bay, being detained by the invalids coming over the hill. We found to our dismay that the travelling was most villainous, deep soft snow, water in places, and sludge, through which we had great difficulty with both sledges, the dogs being afraid of water, and useless in the deep snow. A fair fresh breeze sprung up, to which we made sail, but it was becoming apparent we would have to camp out another night, when we sighted a sledge in the distance. This turned out to be a volunteer party of officers and men,

S.W., 2.3 b. c. + 34°

with Capt. Nares and Comr. Markham, who soon hurried us on, and we reached the ship just after midnight, amid cheers and congratulations of our shipmates.

Travelled, 14 miles.
Marching, 11 hours.
Lunch and spell, $5\frac{3}{4}$ hours.

Ayles and Mitchell in the drag-ropes, the latter allowed to totter alongside, in belt, assisted by the Commander, in consideration of his own request. S.W. 6.7 + 35°

H.M.S. "ALERT," Winter Quarters,
3rd April, 1876.

MEMO.

Taking command of H.M. Sledge "Poppie," you will accompany Lieutenant P. Aldrich in his journey along the north shores of Grant-land, and carry out such orders as he may see necessary to give you.

During his homeward journey, his party will depend entirely on certain depôts of provisions being established in his rear.

This important work, on which the lives of the men in advance depend, it will be your duty to perform.

In forming a depôt the utmost care is necessary to secure it against the attacks of bears and foxes. The packages, hidden, if possible, should be completely covered with *heavy* boulders; and if for use before the thaw commences, the whole should be frozen into a solid mass.

On your arrival at Cape Joseph Henry, should you not find a sufficient quantity of provisions awaiting you, you are to return to the ship. In the event of there being sufficient provisions at Cape Joseph Henry to enable you to extend your journey, you are to examine such parts of the coast eastward of your farthest position, as will enable you to return to the ship before the 5th June, without the necessity of placing your men on a short allowance of provisions. Under these circumstances, you are to deposit at Cape Joseph Henry a full account of your intended proceedings for my information. The provisions placed in depôt for the support of Commander Markham's party, are not to be interfered with. Whenever yon are in the neighbourhood of it, it will be your duty to visit this depôt and to see that it is thoroughly secured.

You are to see that your men are properly clothed, and that they change their foot-gear as soon as possible after halting, especially if wet. When detached from Lieutenant Aldrich, you must be careful how you expose them to severe weather.

I have firm confidence that you will do your utmost to ensure the general success of the Expedition, and perform your allotted duty satisfactorily.

G. S. NARES, *Captain,*
Commanding Expedition.

To
Lieutenant G. A. Giffard.

May 5th, 1876.
H.M.S. "ALERT," at Floe Berg Beach.

SIR,

I have the honour to forward to you the following summary of my proceedings between April 3rd and May 3rd, whilst attached to North-Western Survey as auxiliary Sledge:—

Leaving the ship on April 3rd, we reached the depôt at View Point, about 5 miles south of Joseph Henry, on the evening of the 9th. Since the first day's march, owing to the deep and soft snow on the floes and the weight of the sledges, theyhave been double-manned, and, with few exceptions, have remained so up to the time I left Lieut. Aldrich, who will have to advance for some little time by half loads. The Captain of my sledge, Wm. Berrie, Ice-Quartermaster, broke down soon after we left the ship, and was sent back from Depôt Point with the "Bloodhound," Geo. Cranstone coming to the sledge to make up our number again.

On April 11th we started to go round Joseph Henry on the floe, but so bad was the travelling that this route was given up, and we went inshore, rounding View Point, and turning to the westward travelled along a valley behind Observation Peak, Mount Julia, and a third hill, west of Julia, round which we turned to the N.W., and on April 16th found ourselves on a large bay which lies between the snow cliffs west of Cape Joseph Henry and Cape Hecla. We named this Easter, now James Ross Bay. It is about 9 miles deep, and thickly covered with deep, soft snow; the ice in it is old, having old smooth hummocks in it. On the 17th we visited a small island—Crozier Island—at the mouth of the bay, about 3 miles east of Cape Hecla. From the top of the island, about 250 feet elevation, we saw a pass running from

View Hill, between Observation Peak and Mount Julia, which would have shortened our outward journey had we seen it then. I returned through this pass. We also saw an overland route behind Cape Hecla, which saved our going round that Cape. A cairn was erected on the island, and a record left. On the 19th we crossed the land behind Hecla—the Parry Peninsula—about three miles across, and found ourselves on another deep bay, or may be straits, but which, it has been as yet impossible to determine. It was about 12 miles across from Point Bird, on the west side of the Parry Peninsula, to the next cape—Cape Colan. We found the snow very deep and soft, and the travelling heavy on this inlet. It was so misty whilst crossing it, that we never had a chance to make out what it was. On April 22nd we arrived at a low spit just east of Cape Colan. This was selected as the place for Lieut. Aldrich's eight-day depôt to be left. A cairn was built to mark the spot. From Cape Colan to my farthest, and on to Cape Aldrich, the coast line runs about W.N.W. About 5 miles beyond Cape Colan is another cape, which we named Stuckberry, and two miles beyond that again another, Point Moss. Between this and Cape Aldrich appear two more capes. The capes named are all bluff and steep to, and each has a low spit running off it due north for from half, to a mile in length, and about half a mile broad. The coast line between these capes forms shallow bays, and the background consists of hills, very irregularly placed, with numerous ravines and valleys; the whole country appears to be a mass of snow. From the top of Point Moss, about 400 ft., we had a good view to the N.W., with no sign of any land beyond, or north of Cape Aldrich. From the Parry Peninsula to my farthest point, there is no visible break in the ice, which is old from the old hummocks on it, and covered with deep, soft snow, presenting a perfectly level appearance. Along the shore and round the spits, are generally two cracks in the ice where it meets the land, but these give no sign of pressure or motion. From Cape Hecla the line of hummocks runs in a north-westerly direction, at a distance of from 3 to 5 miles from the coast for some distance beyond Cape Aldrich.

On the evening of the 25th April I left Lieut. Aldrich and his party in good health and spirits. We had come about 60 miles from the ship. Owing to the quantity of snow all over the land, Lieut. Aldrich had not been able to drop any of his depôts.

On the 26th I began to retrace my steps towards View Point. I had written instructions from Lieut. Aldrich that, unless whilst crossing the inlet I could make sure that it was only a bay, I was not to delay to go up it; I was to return to the ship for a boat to bring out to Cape Colan with the eight-day depôt. I walked out to the line of hummocks, which I found to be a line of broken ice, caused, apparently by floes grinding slowly along this inshore ice, and extending from Cape Hecla to the N.W. as far as I could see. I saw no land beyond Cape Aldrich. The floes from here appear to be less hummocky, and not so much jammed together as off Joseph Henry.

On the 27th we crossed the mouth of the inlet, but it was too deep, 15 to 20 miles, with mirage and low mist, for me to be able to make out whether it was a bay or not. However, I am inclined to think that it is not a strait; it runs W.S.W. To the south and west the country is a mass of lofty, snow-covered peaks. After crossing the Parry Peninsula, we struck across James Ross Bay, and through the pass between Observation Peak and Mount Julia. The pass runs N.W. and S.E., is about 4 miles long, and is 3 miles broad at its western, and one mile at its eastern entrance. The snow was deep and soft, but it is quite practicable for heavy sledges.

We arrived at the View Point depôt again on Sunday, April 30th, and found everything correct. Having provisions enough on the sledge to bring us back to the ship, nothing was disturbed at the depôt. The necessity I am under of taking out a boat to Cape Colan prevented me from carrying out your instructions left at the depôt for me.

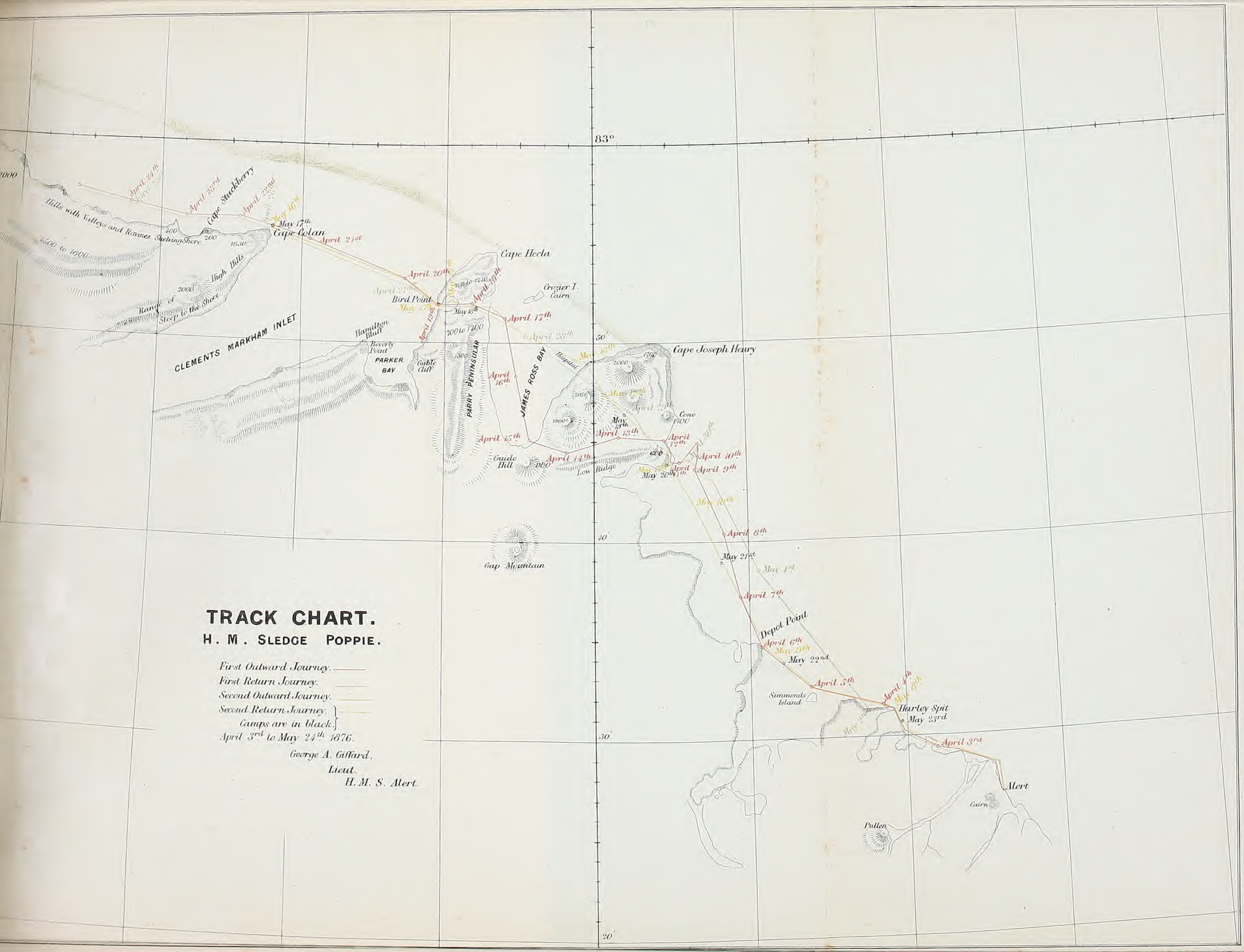
I left the depôt at 4.30 P.M. on the afternoon of the 30th, and reached the ship at 6.30 P.M., May 3rd.

The only game seen and shot during our journey consists of four hares, killed in the valley behind Mount Julia, and one ptarmigan on our return at View Point, which we have brought to the ship for Petersen. Westward of Joseph Henry the vegetation on the few uncovered spots is very scanty, and the tracks of animals few and far between.

With the exception of slight attacks of diarrhœa, and two mild cases of snow-blindness, my crew have been in perfect health.

I have the honour to be, Sir,
Your most obedient Servant,
GEORGE A. GIFFARD,
Lieut.

Captain G. S. Nares.


TRACK CHART.
H. M. SLEDGE POPPIE.
First Outward Journey.
First Return Journey.
Second Outward Journey.
Second Return Journey.
Camps are in black.
April 3rd to May 24th 1876.
George A. Giffard,
Lieut.
H. M. S. Alert.
83°
50'
40'
30'
20'
Alert
Cairn
Pullen
Harley Spit
May 23rd
Simmonds Island
Depot Point
Gap Mountain
Low Ridge
Guide Hill
Cone
Cape Joseph Henry
Crozier I.
Cairn
Cape Hecla
JAMES ROSS BAY
PARRY PENINSULAR
Gable Cliff
PARKER BAY
Beverly Point
Hamilton Bluff
Bird Point
CLEMENTS MARKHAM INLET
Range of Steep to the Shore
High Hills
Hills with Valleys and Ravines, Shelving Shore
Cape Colan
Cape Stackberry
April 3rd
April 4th
April 5th
April 6th
April 7th
April 8th
April 9th
April 10th
April 12th
April 13th
April 14th
April 15th
April 16th
April 17th
April 19th
April 20th
April 21st
April 22nd
April 23rd
April 24th
May 17th
May 21st
May 22nd
May 23rd
May 24th
May 20th
May 19th
May 4th
May 10th
May 16th
1500 to 1800
700 to 1200
2000
1900
1630
1700
1300
1200
1050
900
600
300
200

Boston School of

Sir,

I have the honour to forward you the following copy of my sledging journal, from April 3rd to May 3rd, 1876, whilst employed as auxiliary sledge to the North West Survey, under Lieut. Aldrich.

Having neither an artificial horizon nor azimuth compass, the data for my chart will be from observations made whilst with Lieut. Aldrich.

Captain G. S. Nares.

Monday, April 3rd.

First march. At 11.15 A.M., after prayers had been said on the floe, all the sledges, seven in number, comprising the northern and the north-western parties, left the ship.

The northern party under the command of Commander Markham, consists of four sledges with two boats, two of the sledges being supports; the north-western party, under the command of Lieut. Aldrich, to which I am attached, consists of two sledges, the "Challenger," and the "Poppie."

All the sledges had their flags flying.

It was a fine morning for a start, bright and sunny with no wind. We travelled along the young ice inside the line of grounded floe-bergs towards Mushroom Point; the travelling was good up to luncheon time, though the sledges are rather heavy; the "Poppie" does not pull as well as she might, we have 50 days' groceries on the sledge, they being bulky, take up a great deal of room, and cause the weights to be spread more over the sledge than they should be, tending to straighten the runners and cause too much of them to take the ice. A twelve-man trough was also substituted for the proper eight-man just before starting, to enable the groceries to be stowed better, and this also helps to spread the weights. Calm b. c. —32°

1.45 P.M. Halted for luncheon, which consists of tea and bacon, the tea will make our luncheon halts much longer than those of former expeditions. Calm b. c. —32°

2.55 P.M. Went on again, the travelling becoming rather harder work on account of the increased depth of the snow, the crust on the surface of which was not strong enough to bear the weight of the sledges, but allowed them to sink in a little.

At 5.30 P.M., halted and camped about ½ mile south of the Cairn on Mushroom Point. Calm b. c. m. — 32°. 7 p.m. Tent —5° Marching 5 hrs. Luncheon 1¼ hrs.

The evening was as fine as the day had been; a little mist. During the day the tracks of wolves were seen on the snow, following the coast line both ways.

We left the ship to-day, dragging a total weight of 1,750 lbs. As soon as the tent was pitched after halting, the cook shifted his foot-gear, and put on the cook's boots, the cook's mate looking out for the cooking whilst he was doing so. This was always done in our sledge; all foot-gear was shifted every night, the men requiring no urging to do so, the remembrance of the toes lost in the autumn, and the recent amputation of Petersen's feet, are warnings too significant to be lightly neglected. The difference between the clothing worn by day and by night consisted during this journey of the duffle coats, which were only worn when on the march in very windy weather, a change of foot-gear, and a pair of unsoled moccasins.

The tea was ready to night before we had all shifted, owing partly to our being a little adrift the first time in pitching, &c., and the lamp being extra well trimmed and everything quite clean.

Courses made good, N by W., W by N ½ N.
Distances, ,, 1½ 3½
Distance made good, 5 miles. Travelled, 5½ miles.

Tuesday, April 4th.

Second march. The cook was called at 5.30 A.M., a misty morning. We found it rather cold during the night, particularly the cook and myself, there was not quite enough banking of snow round the tent.

Our morning routine is, just before cocoa is ready to brush off the condensation, then all hands rouse up for breakfast, after cocoa, prayers, then pemmican, change foot-gear, and pack up.

At 8.0 A.M., we started, and dragging the sledges up to the foot of the ridge of Mushroom Point, double-manned and pulled them to the top; going down the other side did not give any trouble, each sledge going down by itself; by crossing this ridge, instead of going round the Point, we saved nearly a mile in distance, and avoided a nasty hummocky piece of travelling. There were several bare patches on top of the ridge. Calm b. c. m. s. — 22°

After crossing Mushroom Point, we got on to Ravine Bay, so named from a deep ravine which runs into its S.E. side; the travelling over this bay was very heavy, owing to the snow which allowed the sledges to sink in over the runners; we got on slowly, my sledge dropping behind. I see that my sledge Captain, Jas. Berrie, Ice Quartermaster, will not last very long, he is not strong enough for the work, though very willing and hard-working.

At 11.0 A.M., having crossed the bay and reached a spit which joins its western side, we halted for luncheon.

Calm b. c. m. s. —22°

The line of bearing of the sastrugi in the bay was from S.W. to N.E. At noon we went on again, skirting the spit for a short distance, and striking off on to Dumb-bell Bay at the most convenient place, here we were obliged to double-man the sledges owing to the depth and softness of the snow. We were now travelling over an old floe, which extended to within about ½ a mile of Harley Spit, and then this year's ice with less snow, enabled us to single-man up to the spit, which forms the N.W. boundary of the bay.

From Harley Spit the floebergs and hummocks are close into the shore; no young ice between them and it, and we had to travel along the shore and between soft snow, and heavy sledges were again forced to double-man.

Calm b. c. m. s. —32°
7 p.m. Tent —12°
Encamped 14½ hrs.
Luncheon 1 hr.
Marching 8½ hrs.

At 5.30 P.M. we halted, and camped about ½ mile beyond Harley Spit.

Gore, who was cook to night, had both his feet slightly frost-bitten; they were quickly recovered by the application of a warm hand; after recovery some glycerine ointment was rubbed in.

The crew cannot as yet eat their full allowance of pemmican.

Courses made good,	WNW.	NNW.
Distances ,, ,,	2	1½

Distance made good, 3½ miles. Travelled, 8½.

Wednesday, April 5th.

Third march. The cook was called at 6.15 A.M. A fine morning, with a light N.W. air.

The following compass bearings were taken from ridge over camp :—

These bearings are corrected for 100° west variation

Cone	324°	15′	20 miles.
Depôt Point	297	50	7 ,,
Gap Mountain..	294	5	20 ,,
Mount Pullen	178	0	7 ,,

N.W., light air b.c. Shade — 32°, sun — 15°

At 9 A.M. started, double-manned along the land towards the boats for about 1 mile when a suitable place being reached, we all turned off on to the floe and made for Depôt Point; just before turning off we passed a large piece of floe which had been shoved up on the shoe, and had its under surface now exposed, covered with large stones embedded in the ice. After turning on to the floe, the travelling was still so bad that we had to continue double-manning. At 1.30 P.M. halted for luncheon about ½ mile east of place were boats are.

The following compass bearings were taken from the hill above the boats, and from our luncheon place :—

These bearings are corrected for 100° west variation

Joseph Henry..	335°	0′	22 miles.
Depôt Point	308	50	6 ,,
Gap Mountain..	298	40	20 ,,
Mount Pullen	160	40	8 ,,

From luncheon place :—

Joseph Henry..	332°	55′	20 miles.
Gap Mountain..	295	10	18 ,,
Hill above boats	290	0	2 ,,
Left extreme Simmons Island	263	50	1 ,,

We are now travelling over an old floe, covered with rounded blue-topped hummocks a few feet above the level of the floe; these are covered with snow, and in the hollow between them it is soft and deep, making the travelling very heavy, we having frequently to make standing hauls, though double-manned, to get the sledges up the sides of the hummocks.

N.W., light air b.c. Shade — 31°, sun — 20°

At 2.15 P.M. went on again as before towards Depôt Point, the travelling being most unpleasant and tiring, the men being continually brought up with a jerk, caused by the sledge coming more quickly down the sides of the hummocks, than they could get through the soft snow between; the sledge stopping suddenly when it reached the soft snow pulled the men who were hurrying on to tauten the drag-ropes again up with a jerk, and then came "one, two, three, haul!"

After luncheon the Commander and Mr. White went in to look for the boats, but ailed to find them, owing to the fallen snow which had hidden all marks.

At 6 P.M. halted and camped on the floe off N.E. end of Simmons Island, on the ast side of which the hummocks are piled up to a considerable height.

Hare and wolf tracks were seen on the land to-day.

Lorimer has suffered from stomach-ache all day, and his bowels not having een opened for four days, I gave him a purgative pill.

It has been a bright sunny day, but cold; we find it cold still at nights, and articularly so dressing in the mornings and packing sledge.

Calm b. c. – 41°
7.30 p.m., tent – 14°
Encamped 15¾ hrs.
Luncheon ¾ hr.
Marching 8 hrs

Course made good, W by N.
Distance „ 3¾; travelled 11¼ miles.

Thursday, April 6th.

Fourth march. At 6 A.M. the cook was called. A fine morning; it was very cold uring the night, the cold striking up through the floe.

8 a.m., tent + 7°
Calm b. c.
Shade – 37°

9.15 A.M. Started double-manned over the same description of ice as yesterday, except hat the blue tops were not so numerous, making the hauling easier, fewer standing pulls; ur course on account of ridges and hummocks, &c., was not direct to Depôt Point; the ommander walked on ahead to pick out the best travelling route.

1.0 P.M. Lieut. Aldrich halted for luncheon, I of course doing the same, and itched his tent, two of his men, the Sergeant-Major and E. Hill, a Marine, being ill and nable to go on; they have both apparently overworked themselves. Lieut. Aldrich ntends to remain where he is for the night to rest them, whilst my sledge goes on to epôt Point, and in the morning I am to return with my crew to bring his sledge on.

The following compass bearings were taken from Lieut. Aldrich's camp:—

Cone	342°	20′	15 miles.
Depôt Point	335	10	2 „
Gap Mountain..	298	20	20 „
Mount Pullen	133	10	10 „
Left extreme Simmonds Island	114	0	3 „

These bearings are corrected for 100° west variation

At 2·45 P.M., we went on with the "Poppie" towards Depôt Point, taking all the vailable hands of Lieut. Aldrich's crew. As we neared the Point the travelling became etter, the snow harder and less of it. We arrived off the depôt of pemmican about .45 P.M., and, having chosen a convenient place for camping, halted and sent the Challenger's" crew back to their tent. At 5P.M. camped off Depôt Point.

Calm b. c.
Shade – 37°
Sun – 4°

The depôt of pemmican, which consisted of pemmican tins piled one on top of the ther, was quite safe and untouched. We took 56lbs. for ourselves and 56lbs. for ieut. Aldrich; the Commander takes all the rest.

Dr. Moss having examined Jas. Berrie, Icé Quartermaster and captain of my sledge, nd found him unfit for the work, he will return to-morrow to the ship with the "Bloodound," a 5-man sledge which leaves us here.

Geo. Cranstone, A.B., comes to my sledge to make up the number. All the emmican was eaten to-night except by Berrie. In the sun on the sledge to-day a air of flannel wrappers, mitts, and a Eugénie were dried.

6 p.m., calm b. c. – 35°
7 p.m., tent – 7°
Encamped 15¼ hrs.
Luncheon 1¾ hrs.
Marching 6 hrs.

We had to cut the fearnought from off the condenser (cooking gear), it having ecome so stiff and shrunken as not to go over the cooking apparatus.

Course made good .. NW ½ W.
Distance „ „ .. 3¼ miles. Travelled 6 miles.

Friday, April 7th.

Fifth march. Called the cook at 4 A.M. It has been a very cold night, too cold to get much sleep.

5.30 a.m., tent – 7°
Calm b. c., – 45°

At 6.15A.M. I started off with five men for the "Challenger's" camp, leaving ehind Berrie to return with the "Bloodhound," and Thos. Stuckberry, C.M.T., one f my crew, who now becomes captain of the sledge, to take charge of the gear left, ack the sledge, and get the daily allowance of provisions, &c., from Berrie.

We reached the "Challenger's" camp at 7 A.M., and found them not ready for us between the sick men and a very green cook. Green cooks are given to trying to cook pemmican without water.

The two sick men were better, but not fit for work, and were sent on ahead as soo as they were dressed.

At 9 A.M. we started with the "Challenger" and reached Depôt Point a 11 o'clock.

Dr. Moss shot a hare this morning on the point.

On arriving at my camp of the previous evening, we halted for a few minutes t equalize the weights on the sledges; the "Challenger" taking on a three-day depô brought here by the "Bloodhound," we took on 28lbs. of pemmican for the "Challenger" the weights added to the "Poppie" are 84lbs. of pemmican which, taking into accoun the amount of provisions consumed, will bring our weights up to the same as on leavin the ship.

Having completed our stowage, we went on double-manned round Depôt Point, an then struck out over the ice for Cape Joseph Henry. Round Depôt Point heavy floe bergs have been driven close in to the shore, with old floes outside them; some of thes bergs I estimated at 40 feet above the floe; the floe close round the point outside th bergs was cracked and heaped up, showing the effect of heavy pressure. We got clea of all the broken ice off the point, and on to an old floe at 1.45 P.M., when we halted fo luncheon; now that we are double-manned our luncheon time is reduced to about ha an hour by advancing one sledge whilst it is preparing. At 2.15 P.M. we went on agai over old floes with large and small hummocks on them from three or four feet abov the floe to 15 or 20 feet the snow was soft and deep, the sledges sinking down to thei bottoms, and the men stepping generally up to their knees and sometimes abov them in the snow. The floes were not large ones, varying from one to two miles i length and breadth, separated from each other by ridges of hummocks and broke pieces of floe piled up, making a very rough road; but by following the tracks of th Commanders' sledges—they were about half a mile in advance—we got on withou having to use a pick-axe. At 6 P.M. we halted and camped on the floe.

Calm b. c. m. s.
Shade — 32°
Sun — 5°

Calm b. c m., —26°
8 p.m., tent + 40°
Encamped
13¼ hrs.
Luncheon ½ hr.
Marching 9¼ hrs.

The line of bearing of the sastrugi on the floes was from south to north.

There has been a great deal of mirage and visibility to-day, clouds banking up t the southward.

Waiting for
"Challenger"
2 hrs.

Some comforters and foot-gear were dried in the sun again to-day. The following compass bearings were taken from the camp:—

Gap Mountain	22° 55′	15 miles.
Cone	83 20	10 „
Depôt Point	263 25	2½ „
Mount Pullen	251 15	14 „

Course made good, N by W ¾ W.

Distance, 2½ miles. Travelled, 7½ miles.

Saturday, April 8th.

7.30 a.m.,
tent + 15°
Calm b. c., —32°

Sixth march. Cook was called at 5.30 A.M. A fine morning, but cold again last night.

8.30 A.M. Started double-manned; the same description of travelling as yesterday, over old floes with deep soft snow, and through patches of hummocks and broken piled up pieces of heavy ice. Of the invalids belonging to the "Challenger," the Sergeant-Major is much better and able to pull a little on the drag-ropes, the other man however, is still unwell.

Calm b. c.
Shade — 26°
Sun — 7°

1 P.M. Halted for luncheon, and at 1.30 P.M. went on again as before. About 5 P.M. we came to a larger and rougher patch of hummocks than we have yet passed through. Fortunately, the Commander's party had made the road for us. These patches are full of snares and pitfalls, into which some one is bound to tumble; they are formed by spaces 3 or 4 feet deep, sometimes much more, between broken pieces of ice, or regular cracks of great depth, nicely covered with snow, and impossible to be seen before some unlucky one puts his leg down and falls on his nose. It is rather to be wondered a that there are as yet no sprained ankles or bruised shins. The quality and manufactur of the sledges is well proved in these places where they get an awful knocking about often nearly capsized, and bringing all the strain upon one runner at a time. Our sledges have as yet stood it very well.

Calm b. c. —36°
Encamped 14½ hrs
Luncheon ½ hr.
Marching 9¾ hrs.

At 6.45 P.M. we halted and camped upon the floe.

It has been a fine bright day, and the travelling, as regards the weather, would have been perfect had it been less cold. This morning after breakfast some water was

left in the kettle and was unfrozen at luncheon time, the kettle being in the cook's bag, which is nearly black, and exposed to the sun all the forenoon.

The following compass bearings were taken from our camp :—

Gap Mountain	9°	10′		11 miles.
Cone..	86	55		6½ ,,
Mount Pullen	254	25		16½ ,,
Depôt Point..	264	45		5½ ,,
Sun left of Cone	63	22	20″	

Time, 10h. 54m. 30s. Watch fast on S.M.T. 4h. 1m. 50s.

Course made good, N by W.

Distance, 3¼ miles. Travelled, 9¾ miles.

Sunday, April 9th.

Seventh march. At 6 A.M. the cook was called ; a fine bright morning.

9 A.M. Started going on, double-manned as before, towards Cape Joseph Henry, over Palæocrystic floes and through fringes of hummocks and broken ice. Calm b.c. — 34°

To-day goggles were worn for the first time on account of our having heard last night that both the Commander and Parr had a touch of snow blindness.

Gore, one of my sledge crew, had a nasty fall this morning, bruising his side, over a hard, sharp piece of ice ; he did not haul for the remainder of the day.

At 1.45 P.M. halted for luncheon, over which we spent more time than usual, the water refusing to boil for a long time.

After luncheon, as we were approaching the Cone, I walked on to ask the Commander about his arrangements for bringing off the depôt, which is not at Joseph Henry, but about 5 miles south of it, being half a mile south of View Point.

At 7 P.M. halted and camped on the floe about 3 miles from the depôt, and half a mile behind Commander's party. Calm b. c. — 35°

Everybody eats his allowance of pemmican now, and we find that an eight-man stew pan will not cook our full allowance, even by having half at breakfast and half for supper. Encamped 14¼ hrs. Luncheon 1 hr. Marching 9 hrs.

The following compass bearings were taken from our camp :—

Observation Peak	74°	15′	6 miles.
Mount Pullen	251	30	21 ,,
Gap Mountain	348	30	10 ,,

Course made good, NNW.

Distance ,, 3½ miles.

Travelled, 10½ miles.

Monday, April 10.

Eighth march. At 5.30 A.M. the cook was called. Gore's side is better, not so stiff this morning. At 8.0 A.M. Lieut. Aldrich and myself walked on to the Commander's camp to accompany him to the depôt ; the sledges were left in charge of Good, captain of the "Challenger," with orders to bring them on past the Commander's camp to the edge of the shore hummocks and floebergs to a place that would be marked by us, and there await our return. Calm b. c. — 32°

On reaching the Commander's camp we joined him and his party, with an empty sledge, and started for the depôt. The way to the shore through the hummocks was by no means an easy one, even for an empty sledge ; the floebergs have been well jambed together here, and the floes much broken, being piled up in large hummocks, we had to take a very roundabout route to get into the depôt. There were a great many hard ridges of drifted snow between the hummocks, which, when broad enough to take a sledge, gave a good road. Then there were a number of steep ascents and descents which gave a little trouble, and a good deal of pickaxe work to be done by the party—four men—told off for that purpose ; it took us about an hour and a half to get through the two miles of floebergs and hummocks. We found the depôt in good order ; it consists of pemmican and bacon only, and was placed on a ridge clear of snow, some 200 yards from the floe, with low sloping hills and ridges behind it about 800 ft. in height, and on either side of it, about half a mile apart, a narrow ravine runs down to the shore. The depôt is easily distinguished from the ice outside the line of the shore hummocks.

Whilst the sledge was loading, the Commander, Aldrich, and myself walked up the

low hill, a little to the north of, and over the depôt. From the top we had a view of the ice to the northward. There was no improvement in its appearance as regards travelling, the floes being mostly from one to three miles across, with heavy fringes of floebergs and hummocks; the Commander's journey seems likely to be a slow and tedious one; neither was our prospect of rounding Cape Joseph Henry by the floe a very cheering one, as it will have to be such a long round to avoid the shore hummocks and grounded floebergs. There are signs of considerable pressure off the Cape from the way the floes have been piled up against it. Aldrich has determined to try to get round by the ice, bad as it looks, as from his autumn observations and experience, he thinks the route by the land will be more difficult still, besides which, it is uncertain both in direction and distance.

The following round of compass bearings was taken from the hill :—

Observation Peak	63° 50′	5 miles.
Cone	105 15	2½ „
Top of Cape Rawson	240 45	28 „
Mount Pullen	254 20	22 „
Gap Mountain	340 0	9 „

The sledge had started on its return before we had finished our observations from the hill. On our way down we saw the tracks of hares and ptarmigan, but in no great numbers. We caught the sledge up about one-third of the way through the hummocks, where they had halted for luncheon. We got clear of the hummocks, and reached our sledges at 3.30 P.M. Here the sledge, with the depôt, halted, and we unpacked it, whilst the Commander's party went back to his camp to advance their sledges, &c., here for the night.

We took 80lbs. of pemmican, which will again bring the weights up to the same as on leaving the ship, plus the additional weight of tent gear from wet, which is considerable.

Whilst our tents were being pitched, and sledges repacked, &c., Aldrich and I walked on over the floe to the northward to find a road to make a start on to-morrow. It is not promising, and we shall hardly get round Joseph Henry under ten days or a fortnight, as it looks like double-manning all the way, besides road making through the fringes of hummocks. We marked the best route for making a start by to-morrow, and at 5.0 P.M. returned to the camp, where all the sledges were now assembled, and tents pitched.

Encamped 13 hrs.
Marching 2 hrs.

Compass bearings from camp :—

Observation Peak	69° 30′	6 miles.
Cone	90 0	2½ „

It has been a fine day, quite calm.

Course made good, N by E.
Distance „ 1 mile.
Travelled, 3 miles.

Tuesday, April 11th.

Calm o. m. — 12°

Ninth march. At 4.30 A.M. the cook was called. Gore has quite got over his bruise now, and is able to pull. 7.30 A.M. Proceeded double-manned over Palœocrystic floes to the northward. It is a dull thick morning, and a very bad light, the goggles, when marching with the sun behind us, as we are doing now, quite prevent you seeing more than a few feet ahead, this does not matter much for the men on the drag-ropes, but those who have to pick out and show the way cannot wear them.

Dr. Moss and Mr. White, who return to the ship to-day, were with their men assisting the Commander's party until luncheon time.

At 11.45 A.M. Halted for luncheon, it having come on very thick, and we being amongst a lot of hummocks, and wanting a little less fog to see the best way. From the slowness of our progress, and the difficulties in the way, which are greater than we expected, Aldrich has determined to go in shore, and either get round behind Joseph Henry by the land, or, if possible, the ice close to it. At 1 P.M., colours being hoisted, after hearty cheers and farewells, we parted from the Commander's party. The sun breaking out and partially clearing the mist away, at the same time making all things look brighter. Dr. Moss's crew hauled one of our sledges back, whilst our men dragged the other. We reached our last camp at 2.30 P.M., and after again hoisting colours and cheering, parted from Dr. Moss's party, who started back for the ship, whilst we made our way through the hummocks towards View Point. It was a very different thing going through the shore hummocks to-day with our heavy sledge, to what it was

yesterday with a light one. We certainly had the advantage of a road, but it required more picking in many places that were too steep for us, and very careful guidance of the sledges when going along the snow ridges. The floes have been much broken and jambed together here, hummocks being formed of large broken pieces of these immense Palœocrystic floes piled up and pressed together in all manner of shapes; the floe bergs do not appear, as a rule, to be so high as those about Floe Berg Beach, either the water is deeper here close to the shore, or they have not been driven so far on shore; the worst part of the travelling through these hummocks was when the cracks and holes and the broken pieces of ice left sticking up, were all covered and reduced to a level-looking piece of floe by the snow, and the mistake was only found out by some one having a good fall, and then the sledge had to be got through by standing pulls, until the men could walk on in safety; about half-an-hour after we entered the hummocks the mist came down again, adding greatly to our difficulties and discomfort.

At 7.15 P.M. we halted and camped in the hummocks about ½ mile from the shore, having been 4½ hours coming about 1½ miles through these hummocks.

Calm o. f. — 4°
8.30 p.m. tent + 10
Encamped 14½ hrs.
Luncheon 1¼ hrs.
Marching 10¼ hrs.

Woolley, having slightly sprained his ancle coming through the hummocks to-day, I rubbed in a little turpentine liniment.

I gave Cranstone, some Persian gauze to put over his goggles, the glasses of which are so light that they do not protect his eyes enough.

Courses made good.	North.	SW ½ S.
Distances „	1′	1½′

Distance made good, 1 mile; travelled 6½.

Wednesday, April 12th.

Tenth march. 7 A.M. cook was called; a fine day, the fog having cleared off, the sun shining brightly.

8.30 a.m., tent + 21°
Calm b. c.
Shade — 10°
Sun — 1°

At 10 A.M. started for the shore, double-manned. Aldrich had started as soon as he was dressed, to look for our route, either close round the capes or overland. It took 2¼ hours to get both sledges through the remaining half mile of hummocks to the shore, the ice being more broken and uneven as we got in close to the land; we were very glad to reach the shore, more especially as we found the snow hard enough to enable the sledges to get on single-manned towards View Point. The men dislike the double-manning very much, and always try to get on single-manned, if possible, the walk back for the rear sledge is always such weary work, and more tiring than the steady hauling. We proceeded due north from the depôt to View Point, which is about ¾ of a mile distant. View Point is not a prominent one, at present it is a snow slope, which runs up to a low, round-topped hill, about 300 feet elevation, behind which is a second hill of about 500 feet, and then a third, of about 800 feet, all running W. by S. from the floe.

Calm b. c.
Shade — 9°
Sun + 7°

At 1.30 P.M. we halted for luncheon on the south side of View Point. The "Poppie" drags much more heavily than the "Challenger," though the weights on both sledges are the same, it must be owing to the twelve-man trough, which binds her too much at the ends, and tends to spread the weights. At 2.30 P.M. went on again; the snow slope —View Point—which we had to cross, was so steep that, though the snow was quite hard, we had to double-man our heavy sledges to keep them from taking charge, and rushing down against the ice. The floebergs are close against the point which slopes up directly from them, leaving no flat part at all. About half way across the point we came upon a crevasse—we were just below it—about 30 feet above the floe, it was from 60 to 70 feet long, partly bridged over in places by snow about 1 foot thick; it was 12 feet broad and some 20 feet deep; its shore face was a regular snow wall, whilst the opposite side was more like a drift; it would be a very nasty place to get a sledge into. After crossing the point we continued to the northward, along the shore, following Aldrich's footsteps, which led towards the cone about 3 miles off, we were able to go on single-manned again. To save time which is lost by the difference of speed between the two sledges, the "Challenger" having constantly to wait for us, I lashed the two sledges one astern of the other, all hands manning the drag ropes of the leading sledge.

At 5 P.M. Aldrich returned, and we camped in the valley about half-way between View Point and the Cone; the result of Aldrich's walk is, that we certainly cannot get round either the Cone or Joseph Henry to seaward without a very great loss of time and expenditure of labour; the way through the valley behind all the hills north of the View Hills, appears feasible, but will take us a long way west. The valley which we are now in, and through which we are going to travel, runs in a general direction

Calm b. c. — 25°
8 p.m. tent + 14°
Encamped 14¾ hrs
Luncheon 1 hr.
Marching 6 hrs.

from here, between the hills on either side, about W. by S. rising gently from the floe.

Between View Point and Joseph Henry, from the appearance of the floes, the water must be deep close in.

During the day the track of one hare was seen, and plenty of lemming tracks but no live animals.

There was willow about the depôt and a little moss.

The line of bearing of sastrugi between View Point and the Cone, is from N. W. to S. E.

Courses made good,	W.	N $\frac{1}{2}$ W.
Distances	$\frac{1}{2}$	$1\frac{1}{4}$

Distance made good, $1\frac{3}{4}$ miles; travelled 3 miles.

Thursday, April 13th.

6.30 tent zero
Calm o. m. — 20°

Eleventh march. At 4.15 A.M. the cook was called. A dull misty morning which always makes it uncomfortable on getting out of the tent.

Calm b. c. m. — 20°

At 7.30 A.M. we started double-manned up the slope of the valley, and got into a shallow ravine which runs about W.N.W. from the shore half a mile north of View Point We followed this ravine for about 2 miles, when it turned away to the south-westward and southward, towards the View Hills, we therefore left it and went on up the valley following its direction, which is W.S.W. We tried single manning in the ravine, but here from the want of snow had to double man, there being so many bare patches where the snow had been swept away. At 12.45 P.M., halted for luncheon; the mist had partially cleared. 1.30 P.M. Having started the sledges, Aldrich and I walked on. The mist did not allow us to get as good a view as we had hoped, as far as we went and could see the valley runs in the same direction viz., W.S.W. We walked on up a steady gentle incline, with hills on our right of from 1,000 to 1,200 ft. elevation, whilst on our left was a low ridge, which runs from the View Hills; as we walked on the snow became less and less thick upon the ground, in some places the land had been swept bare of snow; there is one place over which we are afraid it will be necessary to make a portage. We saw several hare tracks, and under a hill on our right 5 hares; Aldrich had not his gun with him, I went after them with a rifle and managed to shoot 4, 3 bucks and one doe, they will be a welcome change from pemmican for a couple of meals for each sledge; there were a few ptarmigan tracks but no birds were seen.

Calm b. c. m. — 20°
7.30 p.m., tent + 7°
Encamped $14\frac{1}{2}$ hrs
Luncheon $\frac{3}{4}$ hr.
Marching $8\frac{3}{4}$ hrs.

At 5.0 P.M., we halted and camped, having arrived at the bare patch a quarter of a mile in extent, over which we shall make a portage to-morrow.

It has been a very disagreeable day, misty and damp, which always makes it feel very cold, happily there has been no wind. Since luncheon the travelling has been partly over soft snow, and partly over hard rough sastrugi; its line of bearing is from N.W. to S.E.

On the bare spots we saw a little saxifrage and a few lichens. We can get our foot gear well dried in the sun now on any day on which it shines. This does not extend through to the boot-hose yet. Our coverlets are now rapidly approaching the consistency of deal boards, and don't give much warmth in consequence.

The following compass bearings were taken at luncheon time:—

Observation Peak	75°	40′	$2\frac{1}{2}$ miles
Cone	147	40	$2\frac{1}{2}$,,
View Hill	229	0	2 ,,
Gap Mountain	335	10	9 ,,

Course made good. W $\frac{1}{2}$ N.
Distance .. $2\frac{1}{2}$ miles, travelled 7 miles.

Good Friday, April 14th.

Twelfth march. At 4. A.M. cook was called, light snow falling but otherwise fine.

Last night we cooked one hare for supper, which with potatoes and a little bacon we found just enough, *i.e.*, we could have eaten more, but the stewpan would not hold it.

6.30 a.m., tent + 20°
Calm b. c. m. s.
Shade — 20°
Sun — 9°

At 7.45 A.M., we began to cross the bare patch, one sledge went first with the provisions only on it, then the other with a little of the tent gear in addition, after which the men carried all the rest of the gear and tents over the patch to the sledges, which had been halted beyond it, and were here packed We then went on in a W.S.W.

irection up the valley, double-manned. The travelling was not good, being alternately ver hard ridges of sastrugi from N.W. to S.E., and bare patches where the snow had een swept off; over these even double-manned the sledge has generally to be dragged y standing pulls. Aldrich and I walked on ahead to spy out the land and find as easy road as possible. We went on for about a couple of miles from last night's camp over he same lumpy sastrugi, amongst which the sledges are like boats in a seaway; this vill not be a good route for Aldrich to return by, as from the small quantity of snow n it, the greater part of this valley is likely to be bare very soon after the sun begins o have an effect on the snow. About two miles from our last night's camp, we came o an opening in the hills on our right hand about $\frac{1}{4}$ of a mile broad, and about a mile rther on the ridge on our left hand terminates, and a ravine runs away to the .W., probably turning to the S.E. It was too thick for us to see much, or how is valley terminates, or when we shall be able to turn to the northward again.

At 1.0 P.M., we returned to the sledges and halted for luncheon. 1.30 P.M. went n again, having started the sledges in the same direction—W.S.W.—Aldrich nd I walked on to look at the opening in the hills on our right. We found it o be a pass running due N.W. about $\frac{1}{2}$ a mile broad and $1\frac{1}{2}$ miles in ngth between Mount Julia and another hill to the westward of it. These hills were eep and precipitous on their northern faces, but sloping on their southern into the lley we are travelling through. We found the northern entrance of this pass to be of nsiderable elevation, above, most likely, the ice, but it was too thick to be sure. We w high land to the N.W., which is about the direction of Cape Hecla; close to the estern hill there was a narrow steep ravine running down to the land or ice below us. his would give a sledge route on a pinch, but, from the steepness and amount of snow the ravine, a very bad one; and it would be a loss to adopt it now, as the sledges ill be well by the entrance before we get back to them. In the pass there was plenty snow, the sastrugi being in hard lumpy ridges from N.W. to S.E. Half-way up the ass we met a cold N.W. wind, which gave us both several frostbites in the face. The ind left us at the top, and when walking down towards the sledges, a S.E. wind met s, which caused a few more frostbites. We picked the sledges up as they were going ver a bare stony patch by standing pulls, and then we walked on again up the valley r about $1\frac{1}{2}$ miles, when we came to a ridge from the hill on our right, over which we w our ravine of this morning running to the N.W. round the base of this hill, wards, as we hope, the ice and Cape Hecla. It was too misty, still, to see any stance. At 6.15 P.M. we got back to the sledges and camped for the night. It has en a raw misty day, very uncomfortable, with a light and variable wind during the ternoon.

Calm b. c. m. s. — 15°

L. & vble., b. c. m. — 20°
7.30, tent + 14°

A few hare tracks were seen to-day, but no hares. A ptarmigan had been round r camp last night, but was not seen. On the bare patches there was no vegetation to seen beyond a little saxifrage, a few withered poppies and lichens.

Encamped $14\frac{3}{4}$ hrs
Luncheon $\frac{1}{2}$ hr.
Marching 10 hrs.

Canvas boots were worn to-day, on account of the bare patches; the men did not ke the change, some of the boots being rather too tight.

We had our second hare to-night, cooked by Woolley in a style that would do edit to a French cook. We hope we may soon have another similar change of diet.

We find sleeping on the land much warmer than on the Palæocrystic floes, the cold t striking up to anything like the same extent.

Course made good, W by S $\frac{1}{2}$ S.
Distance ,, $2\frac{3}{4}$ miles; travelled, $8\frac{1}{4}$ miles.

Saturday, April 15th.

Thirteenth march. The anniversary of the ship's being commissioned, and, as we ought at the time, of the Captain's birthday.

During the night the wind got up, blowing from N.W. very squally, force 2 to 7, ith a great deal of drift.

At 6.0 A.M. the cook was called; the wind delaying our start by making it difficult cook.

9.15 A.M. we started, altering our course a little to get over the ridge ahead and own into the ravine; the wind fell as we started, and at 10 A.M. was blowing only with a rce of from 2 to 3. Aldrich and I walked on ahead to point out the way. We went ver the ridge seen last night, and, crossing the ravine which runs N.W. and S.E., scended a conical hill standing by itself on the west side of the ravine. We ascended is about 200 feet; it was too thick to see how far the ravine ran in a S.E. direction; the N.W. it spreads out into a flat, snow-covered plain towards Cape Hecla and the

8 a m., tent + 8
N.W., 2.5., b.c.m.z. — 10°

ice of which we got a glimpse in the distance. We called this hill Guide Hill, as it is a good leading mark for this route. We returned to the sledges, which had been advancing double-manned as usual, and on reaching them at 1.15 P.M. halted for luncheon. The "Challenger's" kettle was out of order to-day, and the water would not boil. At 2 P.M. the wind freshened up again, which, making the boiling nearly hopeless, they drank their tea made with warm water only; a very great deprivation, as we find there is nothing does us so much good or there is nothing that the men look forward to so much as the tea at luncheon time. It is impossible to speak too highly of the compressed tea which we are using.

N.W. 2.3., b. c. m. − 18°

N.W. 5.6., b. c. m. z. q., − 12°

At 2.30 P.M. we resumed our march, and a most disagreeable one it was. As we rounded the base of the hill on our right, the wind blew straight into our faces. Everybody had on duffle coats and face cloths or comforters. We only made short fleets with the sledges, on account of frostbites, which were plentiful, but, with one exception of the fingers, entirely confined to the face. Aldrich and I walked on either side of the men to look out for them halting at once whenever a man was bitten. We found the application of a warm hand, or even turning the face away from the wind, always speedily recovered these frostbites.

N.W. 5.6., m. z. q. − 17°

Encamped 15 hrs. Luncheon 1¼ hr. Marching 7½ hrs.

At 6.0 P.M., having fairly rounded the base of the hill and got on to the low land, steering N.W. by N., we halted and camped, which we were all glad to do, for it had been a bitterly cold march, the wind going through all your clothes as if you had none on.

We all wore duffle coats and face cloths or comforters over the faces to-day, to protect them from the wind.

We have, to day, gradually altered course round the foot of the hills on the right of the valley until now, we are steering N.W. by N. for Cape Hecla, and have also descended to about the sea level; this valley, or overland route to Cape Hecla, runs from the floe between the View Hills, and the Cone, in a W.S.W. direction for about 8 miles to where we turned off to-day, its greatest altitude is about 500 feet. The leading marks of the route are, the high hill over View Point, from which you steer W.S.W. along the centre of the valley, with high hills sloping down to it on the right, and a low ridge on the left; the ridge terminates just opposite the last hill on the right, where you turn to the N.W., the turning point is well marked by the solitary conical hill—Guide Hill—1,000 or 1,200 feet high, up which we went to-day for a short distance. We had an extra glass of grog to-night in honour of the ship's commissioning, and, as we all thought, the Captain's birthday.

Course made good, W by N. ¾ N.
Distance „ „ 2 miles; travelled 6 miles.

Easter Sunday, April 16th.

8.30 a.m., tent + 7°
N.W 5.6, m. z. q. − 25°

Fourteenth march. At 6 A.M. the cook was called. The wind had blown from the N.W. all night, making the tent feel very cold, as it came through and through it, and the coverlets being too stiff to stop down at the ends, it got under them.

At 10.0 A.M. we started, having at last got the kettles to boil and make the cocoa; we went on double-manned. The wind began to die away slowly shortly after starting. It being thick, Aldrich and I walked on ahead N.N.W. to point out the way; it was very cold when we first started this morning, the wind piercing through everything we had on, the snow was also soft and deep from drift, often up to our knees, and we could only flounder on slowly. Goggles are of no use on a day like this, when you have to look out for your way, as they become quickly coated with ice.

Calm b. c. − 25°

At 2.0 P.M. we halted for luncheon, the wind dying away, and at 2.30 when we resumed our march it was calm and beautifully bright and clear, a most joyous change from the forenoon. Aldrich and I walking on ahead, were soon struck by the exceeding flatness of the land we were now on, and the great increase in the depth of snow, and came to the conclusion that we were not on land but ice, a conclusion soon afterwards justified by our coming across a large old hummock with a deep snow-drift; from this hummock—we saw no others near—we made out Cape Hecla, agreeing with its position as laid down by Aldrich in the autumn. This bay, which we temporarily named East Bay, now called James Ross, runs away from Cape Hecla to the southward, to within a mile of Guide Hill, and then out again to N.E. to the cliffs west of Joseph Henry; its depth being about 10 miles, breadth at the head ¾ of a mile, and at the entrance about 8 miles. It appears from here quite smooth, with very few hummocks on it, deep snow as far as we have gone; we also saw Observation Peak and the snow cliffs to the west of

Cape Joseph Henry. Near the mouth of the bay, about 3 miles from Cape Hecla, we observed a small island—Crozier Island—which we hope to visit to-morrow.

At 7 P.M. We camped. The afternoon has been a truly beautiful one, and now the evening is simply perfect, not a cloud to be seen, and making everyone forget all the misery of the late blow.

Calm b. − 25°
8.30, tent zero
Encamped 16 hrs.
Luncheon ½ hr.
Marching 8 hrs.

The sastrugi at the head of the bay is rather confused; however, the line of bearing shews the prevalence of northerly winds.

Duffle coats and face cloths were worn again to-day up to luncheon time; several of the men who wore their canvas boots to-day, complained that they felt cold at once in the feet on leaving the land, and getting on to the ice again, they will be discontinued.

The handles of the stew-pan came off to-day, they are not a strong enough fitting.

The following compass bearings were taken from our camp :—

Cape Hecla	87	30	6 miles
Left extr. Crozier Island ..	90	40	3½ ,,
Centre ,, ...	100	20	4 ,,
Right extr. ,, ...	104	45	4½ ,,
Snow Cliffs	150	30	8 ,,
Observation Peak	170	45	6 ,,
Guide Hill	284	30	4 ,,
Sun left centre of Island ..	74	32	I.E. −2° 30′

Time 11h. 7m. 45s. Watch fast on S.M.T. 4h. 1m. 42s.

Course made good N. by W.

Distance ,, ,, 3¼ miles; travelled 9¾ miles.

Monday, April 17th.

Fifteenth march. At 6.30 A.M. cook was called. A bright sunny morning, a great deal of mirage about. Temperature of bag on awaking, + 25°.

8 a.m., tent + 15
Lt. & vble. b. c.
− 28°

9.30. A.M. Started, tried to get on single manned, but much to the disgust of all hands could not, on account of the depth and softness of the snow. I suppose it is blown on to the bay from the surrounding high land.

Aldrich and I walked on a short distance ahead, and came across a few round-topped hummocks well covered with snow. At noon we returned to the sledges, as Aldrich wished to get sights for latitude.

At 1.30 P.M. we halted for luncheon, still very fine but cold.

Calm b. c.
Shade − 30°
Sun − 13°

At 2.0 P.M. directing the sledges to go on straight for Cape Hecla, Aldrich and I walked to Crozier Island, the snow was soft and deep all the way, a trifle harder near the island, which we reach in 2h. 10m. from leaving the sledges; a hot walk in the sun of from 3½ to 4 miles. The island is about 1½ mile long, from N.E. to S.W., and is about a quarter of a mile broad; it consists of three mounds or small hills running the length of the island, the highest being in the centre, about 250 feet elevation. The land slopes gradually up from the S.E. side along the whole length, but the N.W. or sea-face is very steep; it appears to be composed entirely of rubble earth and loose stones, some large ones showing in the sea-face, which had very little snow on it. On landing we found the snow soft and deep at the shore, less so as we ascended the slope of the centre mound, the top of which was almost bare. We saw very little sign of vegetation, a few lichens, dead poppies, and saxifrage; of animals the track of one ptarmigan and a few lemmings. We had a good view from the top of the land round the bay. From Cape Joseph Henry, which is on this side a very fine cape, being almost perpendicular, to Joseph Henry Peak, the coast line is a rugged, nearly perpendicular cliff, running about W. by S., and rising from 1,200 feet at the cape to about 1,800 feet at the peak, the cliff then slopes down, still running in the same direction, until it meets a spur coming down from Observation Peak, this part forms the snow precipice seen by Aldrich in the autumn at the head of the valley, running between Observation Hills and the Cone, they must be at a perpendicular height of 600 or 700 feet above the ice. From the spur of Observation Peak the cliff runs on at a rapidly decreasing altitude, but in the same direction. The distance from the cape to the western extremity of the cliff is about 3 miles, the coast then trends away to the S.W. and southward, forming the east side of James Ross Bay. On this side are three separate groups of hills, with passes running between them down to the bay. The most northern of these groups of hills is composed of the Observation Peak Hills; these run from the sea, in the spur above mentioned, in a southerly direction, rising rapidly to a height of a little more than 2,000 feet, and then slope away in round

topped hills to an altitude of 800 feet. The distance of the last of these hills from the spur is about 4 miles. The second group of hills, of which the chief is Mount Julia, is separated from the Observation group by a pass, which we missed seeing through the mist on the 13th instant, and which would have greatly shortened our journey. At the bottom of it about 10 miles distant, we saw the high hill, over View Point. Between the end of the snow cliffs and the second group of hills, there appears to be no difficulty in getting into this pass, the coast sloping gradually up. Mount Julia is higher than Observation Peak, and rises quickly from the shores of the bay, which are sloping for a short distance, to its greatest altitude about 2,200 feet, and then gradually subsides in a series of peaks to an altitude of about 1,000 feet. These hills run along in a S.E direction for a distance of 4 miles from the shores of the bay.

Between the second and third group of hills is the pass, which Aldrich and I walked up on the 14th instant, the highest hill of this group is a little under 2,000 feet, and rises quickly from the bay, sloping away to the S.E., along the False Pass, and to the southward to the head of the bay to from 1,200 to 1,000 feet.

The head of the bay is the low valley or ravine we came down on the 15th instant, which runs back towards high hills, running S.E. and N.W., one of which we thought we recognised as Gap Mountain. Guide Hill forms the western head of the bay, behind this, as far as we can see to the S.W., are hills and mountains of every conceivable shape and form, but none of a greater altitude than 3,000 feet. On the western side of the bay, starting from Guide Hill, the land rises gradually in ridges, with hills behind, from 700 to 900 feet in altitude. These ridges terminate in a range of hills running nearly at right angles to them, *i.e.*, west. Then comes what appears to be a valley, running behind Cape Hecla about 1½ mile broad, north of which are hills and high land, terminating in Cape Hecla, which from here appears to be hog-backed, and steep to. Over these hills, to the westward, appear other more distant ones, which probably terminate in another cape.

From Cape Joseph Henry to the peak, the floe-bergs and hummocks are very heavy, and seem closely jammed against the cliffs. From the peak to Cape Hecla they run in a straight line W. by N. and are about 1 mile outside of this island. We could not see whether the line of hummocks touched Cape Hecla or not, but if not it must be very close to it. With the exception of a few old hummocks, smooth topped, the ice in the bay is a level, snow-covered floe. There was no pressure of ice against the sides of the island, merely a crack and a little unevenness here and there, where the ice touched the shore. No hummocks or broken pieces of floe.

We chose a place on the highest part of the island to build a cairn on and leave a record in, piling a few stones up to mark the place, and then taking a round of compass bearings.

Cape Joseph Henry	211°	15′	7 miles
Joseph Henry Peak	214	45	6½ ,,
Observation Peak	225	15	6 ,,
View Hill	236	00	10 ,,
Mount Julia	251	00	5½ ,,
Third Hill	262	15	6 ,,
Guide Hill	283	15	8½ ,,
Gap Mountain?	339	30	13 ,,
Cape Hecla	58	50	3

Calm b. c. s.—29°
9.0 p.m. tent + 18°
Encamped 14½hrs
Luncheon ½ hr.
Marching 9¼ hrs.

At 7.15 P.M., having returned to the sledges, we halted and camped; since luncheon light snow has been falling. The line of bearing of the sastrugi altered from N.W. to S.E., to West to East, as we advanced towards the mouth of the bay.

We saw a fox track on the bay to-day, crossing it to eastward. On camping, we took the following compass bearings:—

Crozier Island Cairn, S.E. ¾ E.	1½ miles
Cape Hecla, E. ¾ N...	3½ ,,
Guide Hill, W. ¼ N...	7 ,,

Cape Joseph Henry, in transit with snow cliffs, S. ¾ W.
Course made good, N by W.
Distance ,, ,, 3 miles. Travelled, 9 miles.

Tuesday, April 18th.

8.30 a.m., tent + 22°
10.0 a.m., calm b. c. — 15°

Sixteenth march. At 7.0 AM., the cook was called; a fine, calm, sunny morning. As soon as we were dressed I started off with two men, Ayles and Symons, for the island to build the cairn.

Aldrich at the same time started off for the shore to see if the valley we saw esterday would lead us through behind Cape Hecla; the sledges were ordered as soon s packed to stand on for the cape, looking out for a signal to tell them to come shore.

On reaching the island we built the cairn on the spot chosen yesterday; there was great scarcity of big stones handy; we had to pick them all out of the sea face of the hill, hich was very steep, and carry them up. The small stones and earth for a few inches own were easily shovelled up; I saw no drift boulders on the island, but a great many ound smooth pebbles, and all the stones were quite smooth on one side, as if by the ction of water; the smooth side was always the buried one.

The cairn built was a circular one, 6 feet in diameter at the bottom, this carried up a height of 3 feet, quite solid, composed of large stones with earth and small ones to l up the interstices; on this pedestal the record tin was placed, and then the cairn was rried up to a height of 6½ feet by piling up large stones. It took us seven hours of hard ork to build this on account of the distance we had to fetch the big stones, and the fficulty of digging them out of the ground. The record gave the names of our party lling of the Commander's party, and the position of the winter quarters of both ips.

At 6.0 P.M., having finished the cairn, the two men and myself started off to vertake the sledges; we had seen them turn off from the bay into the valley behind ape Hecla, and disappear over a ridge; as we approached the shore there was a distinct e of broken and raised ice where the floe met the land, 3 or 4 feet high, not ving the idea of any pressure but of the mildest description. By a break in this line, e coast running north and south here, we saw where a small bay ran into the land e west for about one mile; it was circular in form. As we reached the shore Aldrich me over the ridge to meet us; he said that this was a narrow neck of land, and on the her side a deep bay or inlet about 15 miles across to the next cape; we have saved nsiderably by not going round Cape Hecla.

At 7.30 P.M. we camped; it has been a beautiful day. Calm b. c. — 22°

Several hare tracks were seen on the land to-day. 9 p.m., tent +13°

The two men and myself took pemmican biscuit with us for our luncheon to-day on e island; the biscuit is good and satisfying, but very dry, making you thirsty. Encamped 14¾ hrs. Luncheon ½ hr. Marching 9 hrs.

We have had our extra coverlet in the sun for the last two days, which has nproved it greatly, both by softening and drying it.

The line of bearing of the sastrugi to-day, both on the bay and land, was from est to east.

We took the following compass bearings from our camp:—

Hill S.E. end of Parry Peninsula,	271°	30′	1	miles
Cape Joseph Henry	201	30	10	,,
Cairn, Crozier Island.. ..	179	00	3	,,
Sun	27	20		

Time, 11h. 48m. 38s. Watch fast on S.M.T. 4h. 1m. 40s.

Course made good, W by N. ½ N.

Distance ,, ,, 2 miles. Travelled, 7 miles.

Wednesday, April 19th.

Seventeenth march. At 6 A.M cook was called, a fine morning, with a light, east vind. Both our kettles were adrift, rather dirty underneath I expect, or badly trimmed amps. 8.30 a.m., tent + 14°

9.45 A M. Started steering west across this valley through the Parry Peninsula. East 2, b. c. — 20°

At first we went on with both sledges lashed together, but, the wind becoming stronger, hey were cast off, sail made, and each sledge came on single manned. The travelling vas heavy, a series of ridges running across this valley, nearly bare on top, and with deep now between them; it was a very great relief to all hands to be able to get on, however slowly, single manned.

Aldrich and I walked on through the valley, and up a hill on its N.W. extreme, to ave a look round. This valley is a narrow neck of land, running east and west from James Ross Bay to another large bay or inlet—Clements Markham Inlet—between hills f from 700 to 1,200 feet; those on the north side closing in and running down to Cape Hecla; on the south side they run across the peninsula, for this is named the Parry Peninsula, and, turning to the southward at its western extreme, are lost in a mass of eaks that appear in that direction. On the western side of the valley is a small ight, similar to that on the eastern, which runs in for 1½ miles, and forms a part

of a bay, which turns in between two points, about 2 miles apart, out of the inlet, and runs away S.S.W., with steep bold cliffs on its eastern side, with little snow on their faces, one of which, from its peculiar appearance, we called Gable Cliff; after running S.S.W. for about 2 miles, the bay turns to the eastward in what appears to be a narrow creek; on the western side the coast is shelving, with round-topped hills behind; its northern extreme is a steep, bold, bluff, with a low point outside it. The breadth of the peninsula, where we are crossing between the two bights, is from 2½ to 3 miles, and the highest part about 200 feet above the sea; the hills on the peninsula are round-topped, with sloping sides. The next cape, about 12 miles distant and nearly due west of us, is a steep and bluff one, and from it to the S.W. run high hills, very steep to, forming the western side of Clements Markham Inlet. Away to the southward and westward the country appears to be a mass of snow-covered peaks, with deep ravines. In the distance, about 35 to 40 miles, we saw Cape Aldrich and the north peak of the Cooper Key Mountains, but no land or appearance of it north of the cape; between us and the cape is, as it appears, a perfectly smooth, snow-covered floe with no signs of a hummock on it; the line of hummocks runs away in a diagonal line to the N.W. from Cape Hecla, being well clear of Cape Aldrich. Before coming down from the hill we took the following round of compass bearings;—

Cairn, Crozier Island	189°	20′	4 miles
Cape Joseph Henry	202	15	12 ,,
Mount Julia	234	15	9 ,,
Pinnacle Hill over bluff opposite	341	20	5 ,,
Peak over Cape Colan	25	40	11 ,,
North Peak over Cape Aldrich ..	33	35	35 to 40 miles
Cape Aldrich	35	30	,,
Sun	289	0	

Time, 4h. 38m. 26s. Watch fast on S.M.T. 4h. 1m. 39s.

East 2.3 b. c. —20°

As we walked down the hill towards the sledges, we noticed that the sun had begun to melt the snow on its southern face. At 2.15 halted for luncheon; the "Poppie" ten minutes behind. That wretched trough again! On halting Aldrich asked the men what we should call the next cape for the time—its name now is Colan—the Serjeant-Major, with his mouth full of bacon, said that something ought to be named after so good an article of food, so we called it for the time Cape Bacon.

At 3 P.M. the sledges started again under sail, single manned. Aldrich and I walked on and across the bight; between the ice and the shore there was only a narrow crack, covered with snow and quite level; the snow on the ice was soft and deep, but with the fair wind now blowing, not enough so to cause double manning, we walked round the point on the N.W. extreme of the bight, called Bird Point, and on the face of the cliff, which was tolerably clear of snow, chose a place for me to leave a five-day depôt for my return. The sledges got across the bight with difficulty, and had it not been for the wind would have been double manned again; we called this bight of the bay—Parker Bay—Sail Harbour, from our having crossed it under canvas.

East. 2.3 b. c., — 20°
6 p.m., tent + 2°
Encamped 1¼hrs
Luncheon ¾ hr.
Marching 8 hrs.
Securing depôt 1 hr.

At 6.30 P.M., the sledges having reached Bird Point, we halted and camped, my crew first proceeding to secure our depôt, which consists of a black bag containing the groceries, and of two tins, one of pemmican and one of bacon; we found no difficulty in burying the bag about 30 feet up the cliff, on a bare ridge; the earth was dark mouldy stuff; the tins were used as part of the covering for the bag. The weight of the depôt is 130 lbs., and I have also turned over to the "Challenger" 10lbs. of bacon, so that with provisions consumed, we shall start to-morrow pulling 1,400lbs.

On camping to-night, I discovered that my gun was lost, it was accidently left behind at our camp of the 17th instant. I took a pickaxe instead of carrying my gun as usual, when we got under way on 18th, having to build the cairn. The line of bearing of the sastrugi on the peninsula, and in the bay was from west to east.

We took the following compass bearings from the depôt:—

Cape Colan	N.E ½ N.	10 miles
Pinnacle Hill opposite ..	N.N.W ¼ W.	4 ,,
Gable Cliff	N.N.W ½ W.	3 ,,
South Point of bight	W ¾ N.	1 ,,
Low Point ,, ...	N ½ E.	4½ ,,

Course made good,, West.

Distance ,, ,, 2 miles; travelled, 3 miles.

Thursday, April 20th.

Eighteenth march. At 5.30 A.M, cook was called. A dull misty morning, with a ght S.E. wind; we had passed a cold night as usual when there is any wind.

At 9.0 A.M. we started single manned under sail across the inlet for Cape Colan; tween the land and ice were a couple of cracks, one a few feet outside the other; the now which covered them was slightly raised above the level of the floe, showing their hereabouts; the snow on the inlet was soft and deep, and the sledges came on with ainful slowness. At 10.0 A.M. the wind fell, and a thick fog came on; with the fall of e wind ended our single manning, and much to the disgust of all, we had again to sort to double manning; the fog was so thick that we had to use the compass, taking st night's bearing of the Cape N. E. ½ N. Aldrich and I laid out marks ahead for the edges to make for. 9.30, tent + 22° S.E., 1.2, c. m. − 15°

At 1.45 P.M. we halted for luncheon; it had become much warmer, and light snow as falling. At 2.30 P.M. we resumed our march as before, until 5.30 P.M., when the g lifting, we were able to go on without the compass; it had carried us through the g capitally. Calm c. f. s. − 5°

We were now able to look round and see what we were crossing; we found urselves at the mouth of what may be straits, or only a deep bay running W.S.W., ith hills and cliffs steep to on either side, and many high peaks at the head of it, ut much hidden by mist. We saw the coast line from Cape Hecla, which is a fine old cape, running S.S.W., and then turning round to the eastward to Point Bird e coast is high cliff and steep to.

At 7.30 P.M. we halted and camped; it has been a hard day's work, on account the depth and softness of the snow; it is very tiring, having to pull your legs raight out of the same place you put them down in, which in this snow you must . The line of bearing of the sastrugi to day was from N.W. to S.E. The upper ather, which was cut off our fishermen's boots to sole the moccasins with, has not orn at all well; several of my crew have been obliged to cut theirs off, and no one without holes; the standing tops sewn on to the moccasins, are not so good as ose worn as gaiters, as they make it much more difficult to shift the foot-gear. Calm b. c. m. −9° 9.0 p.m., tent + 20° Encamped 13½ hrs Luncheon ¾ hr. Marching 8½ hrs.

We took the following round of compass bearings on camping:—

Cape Hecla	175°	40′	5	miles
Depôt, Bird Point	220	20	2½	„
Gable Cliff	254	45	4	„
Small Hill—Cone—East side of Inlet	328	0	15	„
Mount Wootton, West	347	0	15	„
Cape Colan	38	50	7	„

Course made good, NW ¾ W.
Distance „ „ 2¼ miles; travelled 6¼ miles.

Friday, April 21st.

Nineteenth march. At 5.50 A.M. the cook was called. A dull, misty morning, with ght N.E. wind. 7.45 a.m., tent + 20° N.E. 1 c. m., −17°

9.0 A.M. Started single-manned; we were just able to see Cape Colan, and so had no ompass work; the mist however, prevented our seeing anything down the inlet. On rst getting on to this ice yesterday, we were a little uncertain as to whether it was ld or young ice, but this forenoon we have passed over several old blue tops, which ettles the question in favour of old.

At 1.30 P.M. halted for luncheon; whilst luncheon was preparing, we sent one sledge on double-manned to keep the men warm. Calm c. m. − 19°

At 2.0 P.M. went on again single-manned, as soon as we had picked up the advanced sledge; the "Challenger" having led during the forenoon, the "Poppie" went first after uncheon; the leading sledge has the hardest work, as it makes something of a oad for the second. As we advanced we opened out two points or capes beyond Colan; it was too misty to make them out properly.

At 6.30 P.M. halted and camped; it has been disagreeable all day, owing to the nist, which cleared a little about camping time. Calm b.c.m. − 19° 8.30 p.m. tent + 14° Encamped 13½ hrs Luncheon ½ hr. Marching 9 hrs.

The line of bearing of the sastrugi was from NW to SE.

A hare track was seen to-day, crossing the floe towards Cape Hecla, from the westward.

We took the following compass bearings from the camp:—

Cape Hecla	197°	27′	9½	miles
Depôt, Bird Point	221	45	7½	„
Gable Cliff—Low point in transit	236	45	10	„

Course made good, W.N.W.
Distance „ 5½ miles; travelled, 6½ miles.

Saturday, April 22nd.

8.30 a.m. tent + 10° N.W. 1 2, o. m. − 17°

Twentieth march. At 6.30 A.M. the cook was called. It was cold during the night, a N.W. wind springing up.

9.30 A.M. Started single-manned again, it was a thick morning, we could just see Cape Colan well enough to steer for it; the wind, though light, made us feel cold as usual. About noon we reached a low spit with two ridges on it, running away nearly due north from the cliffs just east of Cape Colan; we passed over two cracks in the ice or snow before reaching the shore, they were about a foot wide, raised very little above the floe, and showing signs of only a very gentle movement in the ice either tidal or otherwise. The ice was not piled up anywhere all round the spit, it was a little more raised in some places than others, but nowhere for more than from 2 to 3 feet; the cliff from which this spit runs out is gable-shaped, perpendicular, about 700 feet in elevation. On the eastern ridge of this spit I am to leave Aldrich's eight-day depôt for his return journey, so taking four men with us with pickaxe and shovel, Aldrich and I went up on the ridge about 50 feet above the floe level to choose and mark a spot; the sledges went on double-manned in the mean time. We built a small cairn on the ridge about 4 feet high, which will be very easy to distinguish when approaching from the eastward. The spit consisted of loose rubble and slaty stones, with plenty of good earth, very little vegetation except lichens, and no signs of any animal life.

We took the following compass bearings from the cairn :—

Cape Stuckberry	38°	30′	3½ miles
Cape Hecla	200	0	13 ,,
Depôt, Bird Point	221	15	10 ,,
Gable Cliff, in transit with point	235	15	8 ,,
Peak over Colan	327	33	0½ ,,
Sun	295	0	

Time, 5h. 0m. 36s. Watch fast on S.M.T., 4h. 1m. 36s.

As soon as the cairn was finished we went after the sledges which had crossed the spit and nearly got up to the cape; two cracks between the spit and ice on the west side as on the east.

N.W. light air, b. c. m. − 17°

At 2.10 P.M., halted for luncheon, the sun was now breaking through the mist and it was nearly calm.

At 2.40 P.M., we went on single-manned; Aldrich and I walked on ahead round Colan and towards the next cape, which was named for the time Stuckberry; its distance from Cape Colan being from 4 to 5 miles; it is a steep bold cliff, semicircular in form, about 250 feet high; the coast between the capes is shelving, with hills behind and numerous ravines, the whole covered with snow. As we walked along we found the snow becoming very soft and deep, every step taking us knee-deep and often more, making walking alone very tiring: this ought to be fine training for the tread-mill, and you don't get on ahead very much faster. We saw the sledges double-manning again as soon as they came to this soft snow; hoping that further out from the land the snow might be harder or less deep, we walked out towards the line of hummocks which appeared to be from 3 to 4 miles distant. We walked out steadily for two hours without finding the least difference in the snow, except that as we got tired it seemed deeper than ever; we lay down and rested; we had a good view of Cape Aldrich, and saw no signs of any land north of it; having rested we returned to the sledges, and at 7.30 P.M. halted and camped about half way between Capes Colan and Stuckberry.

Calm, b. c. s. − 21° 9.30 p.m. tent + 10° Encamped 15 hrs. Marching 9½ hrs. Luncheon ½ hr.

Whilst the tents were being pitched, Aldrich and I dug down through the snow, I got down to the ice at a depth of 3 feet, Aldrich at 4½ feet. The ice was covered with a light sprinkling of earth, &c., the washings of the hills and ravines carried on to the ice during a thaw, but whether last year's or longer ago it is hard to say, though there seems to be more than one year's snow on the floe. Between Capes Colan and Stuckberry the ice has been very gently pressed against the land, and is just enough raised to show when close where the shore and ice meet.

The line of bearing of the sastrugi was from N.W. to S.E.
Course made good, W by N. ½ N.
Distance ,, 3¾ miles. Travelled, 7 miles.

Sunday, April 23rd.

7 a.m. tent + 17° N.W. 1, c. m. s. − 14°.

Twenty-first march. 5.30 A.M. Cook was called; a disagreeable morning, thick with snow and light N.W. wind.

8.15 A.M. Started, tried single-manning, but after struggling along desperately

for an hour and twenty minutes we had to give it up, our progress being slower even than double-manning, we were keeping along the land towards the next Cape, Stuckberry, about N.W. by W. (true). Shortly after starting the weather began to clear, and by eleven o'clock it was a beautiful sunshiny day. Just east of Cape Stuckberry was another low spit running away due north, about a mile long and a quarter of a mile broad. For the last quarter of a mile before reaching the spit the work of dragging the sledges was very severe, the men sinking above the knees every step. At noon Aldrich took sights.

At 1.40 P.M. we halted for luncheon on top of the spit; while it was getting ready I walked up to the toip of Cape Stuckberry. There was not much to be seen as another cape about 2 mels further on and higher cuts off the view, the coast line forms a small bay between the two capes with a shelving beach sloping back to hills with numerous ravines running down their faces to the shore, the whole well covered up with snow; the top of the cape was partly bare, the soil is redder than any we have yet seen, and of a loose and rubble description; no traces of any animals, and no vegetation but a few dead and shrivelled leaves. East light air, b. −17°

Whilst waiting for luncheon, and sitting in the sun, the snow was melted on my leggings and comforter. After luncheon we got up the masts on both sledges, and hoisted the extra coverlets to dry. At 2.30 P.M. went on again, double manned, over the spit towards the next cape, which we named for the time "Eugénie," in honour of the Empress who took so much interest in our expedition, and who supplied us with those nice warm knitted caps which add so much to our comfort at night. Aldrich and I walked on towards the next cape, now called Point Moss. On leaving the spit we passed over two cracks as before, one of these being rather wider than the other. We dropped a lead down, which touched bottom at 14 ft., but what the bottom was we could not see, as the crack was too narrow; for 9 or 10 ft. down the sides of the crack appeared to be snow, and below that ice.

We found the snow beyond this spit just as soft and deep as ever, and we plodded slowly on towards Point Moss, up which we climbed to a height of 400 ft. There was a little grass and moss on top of the cape, and the tracks of one lemming. The soil was red and slaty.

We had a tolerably good view from the top of the cape. There appear to be two more capes between this and Cape Aldrich. The one nearest to us is about 7 miles distant; we named it Cape Good. Over it is one high peak, about 2,000 ft., which we called "Poppie" Peak, now named Giffard Peak. The second cape, about 15 miles off, we called Stubbs Point. Between Stubbs Point and Cape Aldrich there appears to be an indentation of some width, which may be another inlet.

The ice as far as Cape Aldrich appears to be of the same snow-covered description that we are now travelling on; it also now has long ridges on it like Atlantic rollers, which run parallel to the coast line, showing, I think, an increase in the depth of snow on the floe; the line of hummocks seems also to follow the general direction of the land. At 4 to 5 miles distant we could not make it out as closing round Cape Aldrich.

At 6 P.M. the wind freshened up from the east, and mist came down, making our elevated position feel very cold, so we descended from Point Moss and walked back to the sledges. At 7.0 P.M. we reached them, halted and camped; the afternoon was very fine up to 6 P.M. East 2 3, o. m. −23°

9 p.m. tent + 10°
Encamped 12¾ hrs.
Luncheon ¼ hr.
Marching 9¾ hrs.

Lorimer and Woolley complaining of sore feet, I gave them some glycerine to rub in. Most of the crew complained of cramp in the legs at various times during the day, brought on by having to bring their legs up so straight every step out of the same hole they put them into; they also think the walking back for the second sledge more tiring than when dragging, as the drag belts give a sort of mutual support.

If all sledge gear that requires drying could be of a darker colour than our duffle and duck, it would be better for drying; our extra coverlets were much improved by two days' exposure to the sun.

Course made good, West.
Distance „ „ 3 miles; travelled 9 miles.

Monday, April 24th.

Twenty-second march. At 5.45 A.M. the cook was called; it has been blowing freshly from the eastward during the night. At 9.15 A.M. we started, double-manned, towards Point Moss, the wind and mist making it feel very cold. Shortly after starting, 8 a.m. tent + 10° East 1 2, b. c. m. − 23°

the wind shifting to N.W., a light air, the mist began to clear away, and Aldrich got sights at noon. At 1.30 P.M. we halted for luncheon; it was nice and warm, the thermometer showing + 13° lying on a piece of white canvas on the sledge. At 2 P.M. we went on again, double-manned, over a low spit off Point Moss, which is about ½ mile broad, and runs out to the northward for a little more than that distance. We derived no benefit from this piece of land, the snow being as deep on it as on the ice: the same cracks between the spit and floe, with no signs of any pressure. One of the cracks was rather broader than usual, as we saw by the leading men suddenly disappearing down it; they did not go more than a few feet, and were hauled up undamaged! These cracks appeared very deep. After passing Point Moss we hauled in a little and steered towards Giffard Peak. At 4.0 P.M. Aldrich took sights for longitude; there are no good marks to fix by here, all our points being 180° apart, and the hills we see between two capes are, from want of altitude, lost between another two.

N.W. light air, b. c. — 23°

At 5.45 P.M. we stopped and camped, halting early, as I have to turn over 16 days' provisions to Aldrich, my time being up. We help the "Challenger" on to-morrow, and then on the next day return to the ship.

S.W. 1, b. c., —25°
9 p.m. tent + 13°
Encamped 14¼hrs
Luncheon ½ hr.
Marching 8 hrs.

Aldrich caught a lemming to-day, the first live thing we have seen since the 13th instant, when we shot the hares. The weight of provisions, &c., I turned over to Aldrich was 420 lbs.

Course made good, W by N.
Distance ,, ,, 3 miles; travelled, 9 miles.

Tuesday, April 25th.

Twenty-third march. At 5.30 A.M. cook was called. A fine morning, no wind.

As soon as my men were dressed we brought out all our tent gear and bags, and spread them out over the sledge and tent to dry. We then hoisted our colours.

7.30 a.m. tent + 27°
Calm b. c. — 23°

At 9.0 A.M. the "Challenger," being ready, we double-manned her for the last time to give them a good start to-day. I left one of my men behind to look after the tent, &c. The "Challenger" was very heavy, having 44 days' provisions on her, including two five-day and one three-day depôt. One of the five-day depôts we hope to leave at or near Giffard Peak, this evening. The travelling to-day was the hardest work we have had since leaving the ship, the sledge was so heavy, sinking so deeply into the snow, and then one of the depôts being stowed above everything, made her top heavy, and frequently gave her a cant, and then with both crews, and Aldrich and myself on the drag-ropes, it would take several standing pulls to upright and start her again.

Calm b. c. — 17°

At 12.20 P.M. we halted for luncheon, our cooking gear having come on in the "Challenger." At 1.50 P.M. we went on again towards the Peak, standing pulls being the order of the day. We were also going up and down over the long rollers of snow we observed the day before yesterday from the top of Point Moss.

At 5.0 P.M we halted, having failed to reach Giffard Peak, or any place suitable for leaving a depôt. We had advanced to-day at the rate of about half a mile an hour. I put this down much more to the great weight of the sledge than to the badness of our road, though that is about as bad as it can be. Aldrich pitched his tent, and we said good bye, wishing them "God speed," and returned towards our camp. Aldrich has not at present a very bright prospect of making a rapid advance, as he must now advance by half loads for at least five days, provided he can also leave a five-day depôt in that time; if not, I am afraid he will have to go on with it longer. The country about here does not look promising for leaving depôts; too much snow. The "Challenger's" crew are in good health and spirits. Good, the captain of the sledge, cannot always manage his pemmican, as it brings on the diarrhœa, and Ayles, one of the crew, has slightly sprained his ankle.

We got back to our camp at 8.0 P.M. We had tea on our way back, having left a man behind to make it before halting at 5 P.M.; on our return we found all our gear except the duck things, nicely dried.

Calm b. c. — 17°
10 p.m. tent + 23°
Encamped 15¼hrs
Luncheon 1½ hrs.
Marching 9½ hrs.

At 8.0 P.M. we camped. All hands were tired to-night, it having been a hard day's work.

This morning was the first on which the absence of condensation was remarkable in the tent.

Symons, having a slight attack of diarrhœa, I told him to eat rather less pemmican than usual for a day or two. Gore has a slight touch of snow

lindness this evening; bathed both his eyes with sugar of lead solution, and bandaged hem for the night.

I gave Lorimer some Persian gauze to put over his goggles, they were oo light.

Compass bearings from our camp were :—

Cape Aldrich	.. ..	NE. ½ N.	25 miles
Giffard Peak	.. ..	NNE.	7 „
Point Moss..	.. ..	SW by S.	2 „
Cape Hecla	.. ..	SSW ¼ W.	18 „

Course made good, W by N.
Distance „ „ 3 miles; travelled, 3 miles.

We then had the 3 miles to walk back to our camp.

Wednesday, April 26th.

Twenty-fourth march. Called the cook at 8.20 A.M. A fine clear morning, no hist or wind.

I had written instructions from Lieut. Aldrich relative to the position of his eight ay depôt, and also the necessity of having a boat at Cape Colan, unless, on my return urney, whilst crossing Clements Markham Inlet, I could make certain that it was only bay. I was not to delay to go up. On my second trip, after leaving his depôt at ape Colan Spit, if time allowed, it I was to explore the inlet, and visit Cape Hecla.

It being so fine, I determined to walk out to the line of hummocks, whilst the ledge went on towards Cape Colan, so giving Stuckberry, captain of sledge, orders to eep to the old tracks, and go on for the Cape, but to halt at once if a fog came on, started about 10 o'clock. It was very unpleasant walking, the snow being so soft, it ran n long rollers about N.W. by W. parallel to the coast line. About 4 miles from the and the snow became just a trifle harder, and I came upon some large old smooth-topped ummocks from 50 to 60 ft. long, and 20 ft. high. I had passed no crack, or appearnce of one, so I think all this may be considered as old ice; half a mile further on, or rom 4½ to 5 miles from the shore, came to what had appeared to us as the line of ummocks and floebergs. I found it was neither the one nor the other, but merely a ine of broken ice nowhere more than 8 or 10 ft. above the level of the floe, and from 0 to 15 ft. broad; this line of broken ice appears to be made by the moving floes grinding gainst this inshore ice; or slowly rubbing along just before bringing up for the winter. I rossed over the line of broken ice on to the outside floe. The broken ice was about 10 feet road where I crossed it. On the edges of the floes a few small broken pieces were piled up, few f them more than 6 feet high, and most of them only 3 or 4 feet high. Between the two loes the ice was broken in small pieces, the whole well covered with snow. From the eneral appearance of this crack, I should say that very little force had been exerted, the noving floes not having much momentum when they were brought up against the inshore ce for the winter. This is rather taking it for granted that all the ice we have travelled ver between the Parry Peninsula and Giffard Peak and up to Cape Aldrich is stationary, and never moves, and that Clements Markham Inlet is only a deep bay, and also that the rise and fall of the tide must be very small. On reaching the outside floe I found the snow harder, and not so deep as on the inshore ice. There were a great many large old hummocks on this floe quite smooth, from 15 to 20 feet above the floe level, and some running in long ridges for 50, 60, and 100 feet. I climbed up one of the highest near the crack, and had a look round. I observed the line of broken ice to run from Cape Hecla in a north-westerly direction to Cape Aldrich, keeping apparently at a distance of from 3 to 5 miles from the coast. I could not see it trending to the southward round Cape Aldrich, neither did I see any land north of the cape. As far as I was able to observe, the floes appear to be larger and less hummocky, and the travelling on them likely to be better than on those off Cape Joseph Henry.

10 a.m. Tent + 32° Calm b. c. − 13°

I took a few compass bearings from the hummock :—

Cape Aldrich	.. ..	NE by N.	25 miles
Cape Colan	.. ..	W by S ¾ S.	6 „
Gable Cliff	.. ..	SW ½ W.	15 „
Cape Hecla	.. ..	SW by S.	6 „

The walk back was as slow and tiring as the walk out to the hummocks had been; if I had only a pair of snow-shoes it would be a very different thing; a pair supplied to each sledge for the use of the officer would be simply invaluable for travelling in this part of the world, where a mile an hour is about the utmost you can walk at any time.

4 p.m., calm b. c. − 5°

Calm, b. c. — 12
10 p.m. tent
+ 24°
Encamped 14¾ hs.
Luncheon 1¼ hrs.
Marching 8 hrs.

I picked the sledge up again just past the spit off Cape Stuckberry, and going on encamped at 8.0 P.M., just under the cairn on Cape Colan spit. We have thus in one march with a light sledge and a partly made road, done what took us three marches to do going out; the old tracks were a great advantage, for by keeping to them we had a very fair road, seldom sinking more than ankle deep, but anywhere off them it was down to the knees at once.

Symons has got over his attack of diarrhœa.

Gore's eyes were much better this evening, they have been bathed several times during the day with sugar of lead solution, and again this evening after supper applying also simple ointment to the lids, and bandaging them for the night.

Lorimer's left eye was a little touched this evening, so I gave him a little sugar of lead solution to bathe it with.

One or two pairs of the moccasins are giving out, but they have been worn in the winter as well as now.

Stuckberry, who had dropped his spoon on our outward journey, picked it up again to-day.

The coast line from Giffard Peak to Cape Colan runs from cape to cape in a WNW. direction, with shallow bays between the capes. Giffard Peak rises nearly perpendicularly from the ice to a height of about 2,000 feet; between that and Point Moss the coast is mostly shelving with detached hills from 700 to 1,800 feet, with numerous ravines well filled with snow. The distance from Giffard Peak to Point Moss is about 10 miles; Point Moss, Capes Stuckberry and Colan are all bold bluff capes of limestone formation, a part of the rock in situ being obtained; Point Moss and Cape Colan are about 400 feet above the level of the floe, and Stuckberry 200 feet; each of these capes has a low spit off it running to the northward with plenty of snow on it, in fact the whole country along here is nothing but snow, not a bare spot to be seen except just on the top of the capes.

The ice from the Parry Peninsula, to as far as I have gone and seen, has no visible crack or join in it except where it touches the land and round the spits, and these give no evidence of any motion, tidal or otherwise; there are old hummocks in this ice, and the whole is covered with very deep snow.

Animal life seems to have come pretty well to an end here, in fact, with this deep snow it would be difficult for them to find any food; vegetation is very scanty on the few bare spots we have come across.

The line of bearing of the sastrugi along this coast is from NW to SE. About 3 miles out, where I walked to-day, it appeared as if the wind blew as often round Cape Hecla as round Cape Aldrich.

We started this morning pulling 850 lbs.

Course made good, E. ¾ S.
Distance ,, 7½ miles.
Travelled, 7½ miles.

Thursday, April 27th.

9 a.m. tent — 5°

Twenty-fifth march. About 6 A.M., a fresh breeze sprang up from the N.W., making the tent very cold. 8.0 A.M. Called the cook. There is no hill I can ascend here to look up the inlet from without delaying the sledge; the nearest to me is Cape Colan Peak, about 1,800 feet. I should have to go some way round before I could get up, and altogether it would take from 6 to 7 hours, too long a start to give the sledge, my orders admitting of no delay.

N.W. 4 5, b. c.
— 9°

Having a fair wind we made sail, and at 10.30 A.M. started across the mouth of Clements Markham Inlet for Bird Point Depôt, leaving the sledge, I walked for about a couple of miles up the inlet, and getting on a large and ancient hummock took a careful survey of the surrounding country. The distance, however, was too great and there was too much mirage for me to be able to make out with certainty that this inlet may not turn to the east or to the west. A spit appeared to run off from Mount Wootton about 10 miles up the west side, which shut in the view in that direction. The head of the inlet appeared to have a sloping shore, leading up to detached hills with ravines and valleys, and ranges of high mountains—3,000 ft.—beyond. The east shore was chiefly cliffs, steep to, with hills behind running along the coast; and, except in one place near the head, there is not much chance of the inlet turning away in that direction. The western shore is steeper and the cliffs and hills higher than the eastern.

I took the following compass bearings from the hummock :—

Cone Hill, S.E. of inlet ..	N.W. ½ N. ..	12 miles
High Peak head and back	N.W. by N. ..	20 ,,
Mount Wootton	N.W. by N. ½ N.	10 ,,
Cairn, Cape Colan Spit ..	N.E. by E. ½ E.	2 ,,
Cape Hecla	S.S.W. ..	12 ,,
Gable Cliffs	S.W. by W. ..	8 ,,

At noon it was calm, the wind shifting to the N.E. before it died away. As I alked after the sledge, I saw that there were a great many more old hummocks on tis floe than we had supposed on our journey out through the fog and mist. Calm b. c. — 5°

At 2.15 P.M. halted for luncheon; the sail had been of great assistance as long the wind lasted. West 1, b. c. m. — 7°

3.30 P.M. I sent the sledge on again, following the old tracks towards Bird oint, and started off myself for the high bluffs over Beverly Point, the southern oint of Parker Bay. I found the snow very deep as I neared the shore. Before aching it I came to a fine hummock about 20 ft. high, up which I went for a look und and rest. I saw rather more of the west side than I did this forenoon; the me cracks between the ice and shore; no signs of movement or pressure. At the ot of the bluff the snow was very soft, about 4 ft. deep; but hard and ppery on the slope. From the top of this bluff I completed, as well as I was able, y survey of the inlet about Mount Wootton, which stands back a little from the ore. Just south of it is a broad snow valley or large glacier, which does not reach e shore. I find that it will be impossible for me to make certain that this is only bay, as the head of it is so cut up with valleys, ravines, and ridges, any of which ight be, or conceal, a continuation. I am inclined to think, however, from the neral appearance of the surrounding country—which is a mass of snow-covered aks—that it is only a deep bay. There seems to be no limit to the amount of ow all round here to the southward and westward. This bluff—Hamilton Bluff— quite perpendicular on its northern face, its elevation being about 700 ft.; on the p of the bluff and up the sides were a fair amount of hare tracks, some being rger than others; there must be two at least about here. There were also fox and armigan tracks, one of the former and two of the latter. On the few bare patches the top was a little grass, moss, and a few poppies, but the vegetation was idently very scanty.

The hills and cliffs about Parker Bay and Parry Peninsula show a few bare places their N.W. and N.E. faces, where they have been swept by the wind.

I took some compass bearings :—

Mount Wootton	N. by E. ..	15 miles
Cape Colan	N.E.	7 ,,
Depôt, Point Bird.. ..	S. ¾ E.	4 ,,
Cairn, Crozier Island ..	South	8½ ,,
Joseph Henry Peak ..	S. by W. ¼ W...	14 ,,
Sun	N.E. by E.	

Time 11h. 25m. 0s. Watch fast on S.M.T., 4h. 1m. 31s.

At 9.15 P.M. I got back to the sledge, and we halted and camped about a mile om depôt. I would have given a great deal for a pair of snow-shoes to-day when truggling to and from Hamilton Bluff through the deep soft snow. Calm b. c. — 9° 10.30 p.m. tent + 24° 2 a.m. tent + 14°

Both Gore and Lorimer find their eyes much better this evening. They have athed them several times during the day and again this evening with sugar of lead olution, keeping them well bandaged. Encamped 14½ hrs. Luncheon 1¼ hrs. Marching 9½ hrs.

Several of the duffle trousers are beginning to give out between the legs, where hey undoubtedly want a strengthening piece.

Course made good, E.S.E.
Distance ,, 8½ miles; travelled, 8½ miles.

Friday, April 28th.

Twenty-sixth march. 9.0 A.M. Called the cook. There was no condensation in he tent this morning, or, in fact, from this time out. It was a calm, misty norning. 10 a.m. tent + 35°

11.15 A.M. Started under sail to a light breeze which sprang up from the N.W. s we got under way. At a quarter to one we reached the depôt at Point Bird, nd unstowed it. We took on the groceries and bacon, but left the pemmican. Total veight added to the sledge, 80 lbs., making weight to drag, 890 lbs. N.W. 1, c. m. — 5°

At 1.15 P.M., went on again, crossing small bight out of Parker Bay, the wind was dying away, and snow began to fall. We lost the outward tracks on the Parry Peninsula, so steered straight across—it was thick fog now—for Crozier Island. At 3.20 P.M. halted for luncheon, wind shifting to the eastward. 4.35. Resumed our march across the peninsula. At 7 P.M. it began to clear, the snow ceasing, we were now just at the western shore of James Ross Bay, across which we struck for the pass we had seen from Crozier Island on the 17th instant, between Observation Peak and Mount Julia. Leaving the sledge to go on, I picked up our old tracks, and followed them to our camp of the 17th, looking for our gun, which, however, I did not succeed in finding; returning to the sledge at 9.15 P.M. we camped. The mist had now pretty well cleared away, except over the high land to the south, and the floe to the northward. If it had not been so thick, I should have walked out to Cape Hecla after luncheon.

East light air, f. s. zero.
Calm b. c. m. s. — 5°
10.30 p.m. tent + 27°
2 a.m. tent + 12°
Encamped 14 hrs.
Luncheon 1¼ hrs.
Unstowing depôt, ½ hr.
Marching 8¼ hrs.

The line of bearing of the sastrugi across the peninsula and the part of the bay we are now on is from west to east. Gore and Lorimer have recovered quite from their slight attack of snow blindness.

Took a round of sextant angles from our camp. Cairn on Crozier Island zero.

Cape Hecla.. ..	right	31°	30′	0″	4½ miles
Joseph Henry Peak	left	90	34	30	6 ,,
Observation Peak ..	,,	100	15	30	5 ,,
View Hill	,,	118	3	0	9 ,,
Sun	,,	50	47	0	I.E. — 2° 10′

Time 1h. 23m. 30s. Fast on S.M.T. 4h. 1m. 30s.

Courses made good, S.E. ¾ E., E. ¾ S., E.S.E.
Distances ,, ,, 1¼ 2¾ 2¼.
Distance ,, ,, 6¼ miles; travelled 7 miles.

Saturday, April 29th, 1876.

Twenty-seventh march. 9.0 A.M. Called the cook. No condensation, a very fine morning.

9 a.m. tent + 33°
West 1 2, b. c. + 5°

11.20 A.M. Started under sail to a light, westerly breeze, for the pass south of Observation Peak; as we approached the land the snow became softer and deeper, and we were soon down to our knees, the wind died away also at this time, depriving us of the help of the sail, and our progress became very slow and wearisome. Off the shore were several old hummocks, and we passed over two deep cracks before reaching the land, which gave no signs of any pressure or motion.

At 3.30 P.M. halted for luncheon at the foot of the pass.

Calm b. c. + 5°

At 4.45 P.M. went on again up a slight incline, every step knee-deep in snow, then over a narrow ravine, which ran across the pass from Mount Julia, towards the snow cliffs, and then turned to the S.E. along the base of Observation Peak. From the opposite side of this ravine the pass sloped steadily up to an altitude of about 400 feet. In the ravine the snow was up to our middles, and we had to flounder on a few feet, and then pull the sledge on till we got across and began the ascent of the pass, it was steep, the snow was deep, and "one, two, three, haul," was the music to which we marched the whole way up. On arriving at the highest part, we were all so tired that I halted and made some tea; we had saved sufficient out of our daily allowance to do this. There is nothing the men like so much as the tea, they prefer it infinitely to grog. After tea, we went on again down the pass towards View Hill, the travelling was better now as we were going down hill instead of up; the snow remained as soft as ever. The line of bearing of the sastrugi in the pass was from N.W. to S.E.

7 p.m. calm b. c. + 5°

At 10.20 P.M. halted and camped near the eastern end of the pass. Everybody very tired to-night.

S.E. light air, b. c. + 2°
11.30 p.m. tent + 22°
Encamped 14 hrs.
Luncheon 1¼ hrs.
Tea 1 hr.
Marching 8¾ hrs.

This pass is quite practicable for a heavy sledge, and shortens the route from View Hill to the Parry Peninsula considerably. The pass runs in a south-easterly direction, between Observation Peak and Mount Julia. From James Ross Bay to the valley west of View Hill its length is about 4 miles, its breadth at the eastern entrance, 1 mile, and at the western 2½ to 3 miles; its greatest altitude about 400 feet. The whole pass slopes from the Mount Julia hills towards the Observation Peak hills; it is covered with deep, soft snow.

Course made good, E.S.E.
Distance ,, ,, 6¾ miles; travelled 6¾ miles.

Sunday, April 30th.

9.30 a.m. tent + 33°

Twenty eigth march. 9.30 A.M. Called the cook. A very unpleasant morning, north-west wind, thick mist, and snow.

11.45 A.M. Started under sail towards View Hill. All hands complained of stiffness his morning, due to the heavy snow of yesterday. We crossed our outward track of he 13th instant. I did not follow it back, but went right across the valley to the foot f the View Hills, and then kept along their slopes towards the point; the snow was olerably hard here, a very great improvement on the pass. We reached the point about 3.30 P.M., and saw the flag put up by Dr. Moss to mark the crevasse in case we had not een it on our outward journey. Crossing the point, we kept along the shore, and at 4.30 P.M. arrived at the depôt and halted for luncheon. I found at the depôt 16 days' provisions for myself, and 8 days' for Aldrich, with instructions to return with them to he place chosen, and there leave the eight-day depôt for Lieut. Aldrich's party and eturn to the ship myself afterwards, using my 16 days, if any was over, for exploring etween View Point and Cape Colan; however, I could not carry out these instructions, s the uncertainty regarding Clements Markham Inlet makes it necessary that I should eturn to the ship for a boat for fear the ice may break up before Aldrich's return. I had o need to touch the depôt, having still six days' provisions—except pemmican—on the ledge, and of pemmican we had saved enough, from our inability to cook it, to take us ack to the ship.

N.W. 4.5, m. s. + 7°

N.W. 4 5, m. s. + 5°

Just before reaching the depôt a ptarmigan was seen and shot; we are taking t back to the ship for Petersen, who is so ill. At 4.45 P.M. we went on again hrough the shore hummocks, it was so thick now that we had great difficulty in finding way through. At 8.30 P.M., we got on to an old floe, and making sail steered W. $\frac{3}{4}$ S. y compass for Depôt Point, the light sledge went over the old floe in a very different tyle to the heavy one coming out.

10.45 P.M., halted and camped, getting a rough compass bearing of the Cone E. by N. $2\frac{1}{2}$ miles for fixing by; it was only visible for a few minutes and nothing else howed out.

N.W. 4 5, f. s. + 5°

Mid. tent + 24°
Encamped $13\frac{1}{2}$ hrs
Luncheon $1\frac{1}{4}$ hrs.
Marching $9\frac{3}{4}$ hrs.

Woolley, A.B., has been suffering from diarrhœa for the last few days, notwithstanding a reduced allowance of pemmican, so I administered a Gregory's powder o-night.

Courses made good,	S.S.E. $\frac{1}{2}$ E.	S.E. by E. $\frac{1}{2}$ E.	South.	East.
Distances	$2\frac{1}{2}$	1	$\frac{3}{4}$	1

Distance made good, $5\frac{1}{4}$ miles. Travelled 9 miles.

Monday, May 1st.

Twenty-ninth march. 9.0 A.M. Called the cook; the wind and snow had gone but he mist still hid the land.

10 a.m. tent + 40°
Calm b. c. m. + 10°

At 11.15 A.M. started, steering in the direction of Mount Pullen, which I thought I saw at times; all the forenoon and up to luncheon we were ravelling over small floes and through patches of hummocks, and very bad travelling t was through these patches, the freshly fallen snow had covered up all traces of cracks nd smoothed over all the rough patches and broken pieces, so that we had a great deal f stumbling about and falling down, the leaders sometimes partly disappearing down crack; however, we got through without any accident, either bruise or sprain, the nly reason I can think of for our getting through all these horrible places without any ccident is, that "the sweet little cherub" has left his usual seat aloft and perched himself on the floe-bergs so as still to "look after the life of poor Jack."

N.W. 1 2, b. c. m. − 2°

At 3 P.M., we halted for luncheon, and it having cleared got a round of angles.

	Gap of Paps.	Zero.			
Mount Pullen.	left ..	100°	18′	50″	19 miles
Observation Peak.	right ..	73	25	0	7 „
Sun, left of Observation Peak ..		101	19	40	I.E. −2° 10′

Time 7h. 0m. 30s. Watch fast on S. M. T. 4h. 1m. 27s.

At 4.15 P.M., went on again under sail, the clear at lunch was only for a time, as it soon came on thick again; during the afternoon I lost my small sledging compass for a time, the ring to which the strap is fast carrying away, the fastening of the ring was by far too weak. During the afternoon we got on to large floes, and made much better progress, the light sledge does not sink in like the heavy one.

At 10.0 P.M., camped for the night on a large floe off Depôt Point, of which I got a rough compass bearing in the mist W. $\frac{1}{4}$ N. 3 miles.

N.W. 4 5, c. m. − 5°

Several of the men are complaining of looseness, which I attribute to their having taken lately to drinking water, the warmer weather making them more thirsty; the looseness certainly came on with the water drinking.

11.30 p.m. tent + 14°
Encamped $12\frac{1}{2}$ hrs
Luncheon $1\frac{1}{4}$ hrs.
Marching $9\frac{1}{2}$ hrs.

Woolley has recovered from his attack of diarrhœa.

Course made good, S. E. by S.
Distance, „ „ $6\frac{1}{2}$ miles.
Travelled, 9 miles

Tuesday, May 2nd.

10.30 a.m. tent + 35° S.W. 1, f. – 2°

Thirtieth march. At 9.15 A.M. Called the cook; the wind had shifted to the S.W. during the night with a thick fog. 11.45 A.M. Started, the kettle was not quite up to time this morning. Steered by compass W.S.W. over a large floe running in that direction; the snow was rather soft, above the ankles at times, but the sledge did not sink in. The fog lifted at times and became less thick. Being well outside Depôt Point I steered to make the land somewhere between the boats and Harley Spit, as the grounded floe-bergs and patches of broken ice and hummocks would allow.

S.W. 1, b. c. m. – 2°

3.55 P.M. halted for luncheon; took a round of angles.

		Gap Mountain.	Zero.			
Observation Peak	right	..	43°	25′	50″	15 miles
Joseph Henry Peak	right	..	48	41	30	15 „
The Dean ..	left	..	136	17	0	11 „
Sun, left of Observation Peak		..	88	9	20 I. E. – 2° 10′	

Time 8h. 9m. 10s. Watch fast on S. M. T. 4h. 1m. 26s.

5.10 P.M. Continued our march, we now had to make our way through the hummocks and grounded floe-bergs to the shore, the passage was a very rough one, pickaxe and shovel being in constant requisition, the floe-bergs were jammed rather close together, and the spaces between them filled up with boulders of ice loosely packed together, and covered over with loose snow, making the walking unpleasant, to say the least of it; we had a few hard drifts but they invariably ended in a perpendicular drop down which the sledge had to go, and which gave a most satisfactory proof of the excellence of material and workmanship expended on her. At 10.45 P.M., we reached, without an accident beyond a few tumbles, the shore, about a quarter of a mile east of the boats, and going towards Harley Spit at 11 P.M. camped about one mile from it.

S.W. 1, b. c. m. – 6° 12.30 a.m. tent +23° Encamped $13\frac{3}{4}$hrs Luncheon $1\frac{1}{4}$ hrs. Marching 10 hrs.

Course made good, S.E. $\frac{1}{2}$ S.
Distance „ „ 9 miles.
Travelled, 10 miles.

Wednesday, May 3rd.

Thirty-first march. At 6.40 A.M. called the cook; a thick morning with a light south-westerly wind.

Calm b. c. m. – 16°

9.0 A.M. Started, following recent sledge tracks along the land and across Dumb-bell Bay, which, as it was so thick, saved us a lot of trouble; we crossed Ravine Bay and went over Mushroom Point without any trouble, and halted at 1.5 P.M. for luncheon just beyond it. Whilst luncheon was preparing a N.W. wind sprang up, so we rigged the mast, got the sail out, and at 2.20 P.M., hoisting our flag and making sail, we went on along the shore towards the ship. Water had come up in several places through the tide cracks, making it rather slushy travelling in parts. Symons, one of the leaders, got his feet wet in one place, the crack being covered with snow; we halted to allow him to change his foot gear for fear of a frostbite.

N.W. 1 2, b. c. m. – 5° Encamped 10 hrs. Luncheon $1\frac{1}{4}$ hrs. Marching $8\frac{1}{4}$ hrs.

At 6.30 P.M. we got alongside the ship.

The following is a list of my crew. I cannot speak too highly of the zealous and cheerful way in which they have done their work.

James Berrie, Ice Q.M., Capt. sledge. Left at Depôt Point.
Thomas Stuckberry, Capt. M.T., Capt. sledge after Berrie left.
William Lorimer, A.B.
Robert Symons, A.B.
William Woolley, A.B.
William Gore, Stoker.
William Ellard, Private R.M.L.I.
George Cranstone, A.B. Came to sledge when Berrie left.

The direction of the wind and all courses and bearings are true unless stated to be compass.

The distance travelled at the end of each day's march includes double-manning in all cases when the sledges were double-manned.

I have the honour to be,
Sir,
Your most obedient servant,
GEORGE A. GIFFARD,
Lieutenant.

H.M.S. "Alert," at Floe Berg Beach.

May 24*th*, 1876.

Sir,

I have the honour to forward to you the following summary of my proceedings whilst absent from the ship, between May 7th and 24th, in command of H.M. Sledge "Poppie."

I left the ship at 10.0 P.M. on Sunday, May 7th, with part of two depôts to be left at View Point, one for the Commander's party, and the other for Lieut. Aldrich. I had also a canvas boat, which, with the eight-day depôt already at View Point, I was to carry on to and secure at Cape Colan Spit for Lieut. Aldrich.

I arrived at View Point Depôt at 2.30 A.M. on Thursday, 11th, making the journey easily in that time, the travelling being much better than on the first journey. One of my sledge crew, Wm. Lorimer, A.B., was unwell from the time we left the ship; all the first night he was very sick, and did very little dragging in consequence. I put this sickness down, as he did also, to his having eaten rather too much during our three days rest on board the ship; during the second night he complained of his legs being very stiff from the knees up inside the thighs, and on camping I rubbed in turpentine liniment and bandaged them; he also did very little dragging this night. On starting again I allowed him to fall out altogether at rough places, going through hummocks, &c. and on the march which brought us to View Point he had fallen out altogether, and was following the sledge, his legs being no better.

On arriving at the View Point Depôt, I pitched my tent, spending the rest of the morning in stowing and securing the depôt, which I did with stones brought down by the sledge from the hill above it. I took the depôt for Lieut. Aldrich for Cape Colan, and completed my own provisions to 12 days, leaving the remainder of my provisions. After securing, I left a notice to say how the provisions were stowed. Whilst securing the depôt, one hare and one ptarmigan were seen. Left View Point on Thursday evening, the 11th, and arrived on the east side of James Ross Bay, on Saturday 13th, at 3.30 A.M. Here I had determined to leave Lorimer, with one hand, to look after him in a snow house. After leaving View Point he got worse, and had to be put on the sledge. On starting on Friday evening, another man, Wm. Woolley, A.B., was getting a little stiff about the ankles. I found that we could not pull the sledge through the soft snow in the pass between Observation Peak and Mount Julia, without half-loading, with the additional weight of one man; this meant making about 3 to 4 miles per day; judging from our former journey, I had nothing but deep soft snow to expect from here to Cape Colan, so that with one man on the sledge and another a little stiff, I thought it best to leave them as soon as possible, or I might be seriously delayed in laying out the depôt.

The snow, both in the pass and on James Ross Bay, was too soft to build a house with; I found, however, close to the shore in the bay, a large old hummock with a ditch on its weather side, 25 ft. long and 12 ft. broad, with a hard drift on the side opposite the hummock, 11 ft. thick in its deepest part, and gradually sloping down to snow level of the floe; in this drift I cut a hospital, it was 10 ft. long, 3½ ft. broad, and 5½ ft. high. The sleeping place at one end raised 2 ft. above the floe, and the door at the other.

I left there all my provisions, except 7 days for six men; for sleeping on I left the sail and lower robe and two duffle coats; for cooking, the stewpan; and a pannikin for a lamp, which I had previously tried and found to answer; a compass belonging to one of the men, and a copy of true bearing tables for telling the time; a rifle, saw, and snow knife; medicines, turpentine, liniment, bandages, and pills; for amusing themselves I left a book and the two small packs of cards supplied to each sledge, given by Empress Eugénie.

At 9.0 P.M. on the same evening—Saturday, 13th—I left Hospital Hummock, after seeing Lorimer as comfortably settled as possible, and giving final instructions to Woolley who remained with him, which he had volunteered to do, without knowing that I intended him to remain on account of his stiffness.

On my way across the Parry Peninsula, I put up a small cairn of stones on the first ridge, on the east side overlooking the small inlet from the bay, for a notice to be placed in for Lieut. Aldrich, should the dog sledge come out so far.

I reached my depôt of pemmican at Point Bird, in Sunday 14th, in the evening, and halting there, spent the rest of that night and Monday morning in exploring Parker

Bay; I could not under my present circumstances take the sledge down there for a day's journey, as had been intended.

Whilst I walked up the bay, I sent the crew over to Hamilton Bluff, over Point Beverly, to put up a cairn and leave a notice.

I found the snow in the bay much deeper than any I have yet come across; so deep that I had to turn inshore, as I could not walk through it. The bay runs S.W. for about 4 miles. I walked down the N.W. side, a shelving beach some 300 yards broad with hills behind, 1,200 feet; the south east side consists of cliffs, steep to, running down to a low point, about $\frac{1}{4}$ mile from the head of the bay; round this point the bay turns off to the eastward, and gradually narrowing and turning to the southward, apparently ends in a ravine; the deep snow prevented me crossing over to closely examine this; the bottom of the bay consists of cliffs and hills, from 800 ft. to 1,500 ft. high, steep to, with ravines running down their faces, and the deep snow close up to them. The breadth of the bay is from $2\frac{1}{2}$ to 3 miles. I saw no hummocks on the ice in the bay, and the raised line of ice where it touched the shore did not give signs of much pressure. It is quite evident that this bay does not connect at all with Clements Markham Inlet. From Bird Point, which I left on Monday evening, 15th, to the cairn on Cape Colan Spit, we had a very much better journey than I had expected, owing to a fair wind, which helped us for a great part of the way, and also to our finding and travelling over our old tracks of last month. The cairn was reached at 8 A.M. on Tuesday, 16th; in the evening I stowed the depôt and secured it; the ground was too hard to allow of burying it. I scooped out a hole six inches deep, large enough to take the bottom of the gutta-percha case; round this I placed the pemmican, bacon, rum, and lime juice, and on top a black bag containing the sounding line, boots, &c.; round and over all this I built up a cairn of large and small stones 10 ft. in diameter at the bottom and up to a height of $2\frac{1}{2}$ ft., then a diameter of 7 ft. up to $3\frac{1}{2}$ ft., and then 4 ft. up to its total height of 5 ft. A staff with a notice stuck on top completed it; the boat I secured with a banking of earth 6 ft. west of the cairn, with the oars sticking up to mark its position, in case of its being covered with snow.

Whilst securing the depôt, two snow buntings flew by towards the cape, and we heard them chirping round the tent during the day.

I reached Hospital Hummock on my return journey, on Friday morning, the 19th; the two men were very glad to see us again. I found Lorimer very weak, his legs very stiff and painful, but less swollen, his gums rather bad, spongy and drawn back from his teeth; I was afraid that he had a touch of scurvy as well as bad legs.

Woolley seemed all right, the rest having put him to rights.

Lorimer was put on the sledge, and nearly fainted shortly after. I gave him some sal-volatile, which put him to rights again.

I reached View Point on the morning of Saturday, 20th, and remained there for the rest of the morning, adding to the depôt more stones to secure it. On starting last night Woolley broke down, and had to fall out, following the sledge, his feet and ankles having given way.

I left View Point, having taken on my own things left on the way out on Saturday evening. I did not consider the depôt secure against the attack of bears, but as it is certain there are none about here, and it would have taken another day at least to secure the depôt against them, I considered that, with my two sick men, I ought to return to the ship at once. Whilst getting stones to secure the depôt, a few fossils and a small reindeer's horn were picked up, and one hare shot, three others being seen in the distance up one of the hills.

Reached Depôt Point on Monday morning, 22nd instant, and left here one tin of pemmican, 56 lbs., and one tin of bacon, 40 lbs. Lorimer, during this time, was rather worse; his legs did not become more swollen, but gave him much pain from the knees up inside the thighs. He was very weak and helpless and low-spirited, had very little appetite, and complained of want of sleep. I rubbed in liniment and bandaged his legs, and gave him plenty of lime juice to drink.

Woolley was not yet on the sledge, but his feet and ankles and legs above the knees were getting worse; he was also losing his appetite. I left the bacon, and pemmican to enable him to go on the sledge without increasing the weight much. I treated Woolley in the same way as Lorimer. From their gums and teeth both these men had scurvy, as well as bad legs.

Tuesday, 23rd. Camped on Dumb-bell Bay this morning, so as to arrive on board not too early on Wednesday. Woolley has been on the sledge all this morning, and will be on for the next march to the ship. Neither he nor Lorimer are any better. I arrived on board at 8.30 A.M., Wednesday, 24th, and, with the exception of the

two men, Lorimer and Woolley, who are on the sledge, all the men are quite well.

The details of the journey will be given in the copy of my sledging journal.

I have the honor to be, Sir,
Your most obedient servant,
GEORGE A. GIFFARD, *Lieut.*

Captain G. S. Nares.

Provisioning and weights of H.M. Sledge "Poppie," May 7th, 1876.

I have 5 days' pemmican in depôt at Sail Harbour, and 16 days' provisions of all kinds at Joseph Henry Depôt.

Require in addition, to enable sledge to return to the ship after laying out 8-day depôt for Lieut. Aldrich at Cape Bacon, and 5-day depôt at Joseph Henry:—

7 days' provisions of all kinds, except pemmican.
5 days' pemmican.

	lbs.	oz.
Constant weights on leaving ship	538	8
7 days' provisions, less 2 days' pemmican ..	145	13
Packages	15	0
16 days' extra bacon to make up 6 oz. daily ration per man	16	0
23 days' lime-juice, in bottles and case	48	0
Sugar for lime-juice	11	8
For Lieut Aldrich.		
5 days' groceries, in gutta-percha case	80	0
Pemmican, 1 28-lb. tin, 1 14-lb. tin	48	0
Bacon, 20 lbs. tin	30	0
13 days' lime-juice in a jar	15	8
Sugar for lime-juice	6	8
12 lbs. preserved meat, in tins	14	6
Canvas boat and oars	58	0
100 fathoms sounding line	21	8
100 fathoms small line on a reel..	7	8
Total weight on leaving ship ..	1,056	3
Weight per man to drag, 150 lbs. 14 oz.		
Add Capt. Markham's 3 depôts, 300lbs. Leave Lieut. Aldrich pemmican, 48 lbs. } Total to add	252	0
Total weight on leaving ship ..	1,308	3
Weight per man, 187 lbs.		

On leaving Joseph Henry Depôt:—

	lbs.	oz.
Constant weights	538	8
For Lieut. Aldrich.		
8-day depôt	230	0
Canvas boots	21	8
Preserved meat	14	6
20 lb. tin bacon	30	0
Jar of lime-juice (13 days)	15	8
Tin of sugar for lime-juice	4	0
Canvas boat and oars	58	0
Lines and reel	29	0
12 days' provisions for self, including rum and lime-juice	270	0
Total weight on leaving J. H. Depôt ..	1,213	14
Weight per man to drag, 173 lbs.		

GEORGE A. GIFFARD, *Lieut.*

Sir,

I have the honour to forward you the following copy of my sledge journal between May 7th and 24th, whilst absent from the ship laying out depôts at View Point and

Cape Colan. Having neither an azimuth compass nor artificial horizon, I have not been able to make any observations beyond taking rounds of angles with my sextant.

Captain G. S. Nares.

Sunday, May 7.

First march. Left the ship at 10 P.M. I am taking on the sledge a five-day depôt for Lieut. Aldrich, and part of a seven-day depôt for the Commander's party, to be left at View Point, and a canvas boat with a hauling and sounding line to be taken on with Lieut. Aldrich's eight-day depôt now at View Point to Cape Colan. I am provisioned for seven days, having sixteen days in depôt at View Point.

The kitchen has been taken off the tent; a proper eight-man trough has been substituted for the twelve-man that was on the sledge; the extra coverlet remains behind. I am not taking my duffle coat; the men, however, are taking theirs.

N.W. 2, b. c. +5°

A change has been made in the provisioning at the express wish of the men, viz., 2 oz. more bacon per day for each man, making the daily ration 6 oz., and 2 oz. less pemmican, reducing that ration to 14 oz., which is quite as much as an eight-man stew-pan will cook at two meals. We are also taking lime-juice.

It was a fine evening, a little N.W. wind, which died away soon after starting, the temperature falling at the same time. The travelling along the ice inside the floebergs up to Mushroom Point was very good, the snow being hard.

Calm b.c. — 7°

Monday, 8th. At 2.30 A.M. halted for luncheon east of Mushroom Point. At 3.45 A.M. proceeded to cross the point, which was done without unloading, the travelling continued pretty good until we got on to Dumb-bell Bay, and there the old floe, which extends to within a mile of Harley Spit, was hard to get over, the snow being soft and letting the sledge down to her bottom.

Calm b. c. — 6°
9.30 a.m., tent + 27°
2 p.m. tent + 47°
Luncheon 1¼ hrs.
Marching 8½ ,,

At 7.45 A.M. camped for the day on Harley Spit.

The line of bearing of the sastrugi in the bays was from S.W. to N.E. Our short stay on board has not improved the men for sledging, they are all very stiff about the legs.

Lorimer has been ill several times during the march, and not done much dragging in consequence; he puts it down to a pancake supper before starting.

We left the ship dragging a total weight of 1,350 lbs.

7.30 p.m., tent + 27°
Calm b. c. — 6°

Courses made good ..	N. by W.	W.N.W.	N.N.W.
Distances	1½	5½	1½

Distance made good, 8½ miles; travelled, 9 miles.

Monday, May 8th.

Second march. At 6.30 A.M. called the cook; it was a very fine evening, calm and clear.

8.45 P.M. Started along the land, marching close down to the ice towards the boats, following in the old sledge tracks, which make a good road; when about 200 yards from the boats we turned off on to the floe for Depôt Point, it was the same old floe with the number of small blue-topped hummocks, and the deep snow that we crossed on our first journey; here the travelling was very bad, the snow being soft enough for us to sink knee deep, and let the sledge down on her bottom. We were often reduced to standing pulls, but had not to take anything off the sledge, which pulls much easier from having her proper eight-man trough, instead of the twelve-man, as on our last journey, the eight-man bringing the weights well into the centre of the sledge, and not binding her so much at the ends.

Tuesday, 9th. Second march. At 1 A.M. halted for luncheon off the N.E. end of Simmonds Island. The morning a fine one, pleasant weather for travelling though a little cold for standing still yet.

Calm b. c. — 12°

The stiffness complained of on camping last has pretty well worn off now. Lorimer still complains, however, though he has got over his sickness.

At 12.15 A.M. went on again, sticking to the old tracks of first journey, the travelling becoming better as we approached Depôt Point. There are more cracks and more water and slush about the point now than before, and several of the floebergs show signs of the sun having been at work on them, a certain amount of their snow covering having disappeared, leaving the ice bare and blue in many places.

Calm b. c. — 4°

At 7.15 A.M. halted, and camped off Depôt Point in old encampment of April 6th.

Encamped 13 hrs.
Luncheon 1¼ hrs.
Marching 9¼ hrs.

It has been a most perfect night for sledge travelling, calm, clear, and bright, and not too cold or hot.

The men find that they do not want their duffle coats, except, perhaps, one for ne cook.

Lorimer has complained of his legs being very stiff during the night, and again as done very little dragging; the stiffness extends from the knees upwards, inside ne thighs, the legs do not appear much swollen. I rubbed in some turpentine liniment, nd bandaged them.

Our foot gear dries nicely now, whilst we are encamped during the day.

Courses made good	W by N.	N.W by W.$\frac{1}{2}$W.
Distances	2	$5\frac{1}{4}$

Distance made good, $7\frac{1}{4}$ miles; travelled, 8 miles.

Tuesday, May 9th.

Third march. Called the cook at 6.30 P.M. A fine evening, with a little S.W. ind. 7.30 p.m., tent+35° S.W. 1, b. c. – 4°

8.45 P.M. Started, going on round Depôt Point, and over old floes, for View oint Depôt. I followed the old tracks of our first journey, as they gave us a good ad, and all ready made, through the patches of hummocks; the travelling was also etter than on our first journey, there appeared to be less snow, and it was harder; nother great advantage also was, that the sledge not being so heavy did not, as a ule, sink so deeply. We did not get on without some standing pulls, and "one, two, ree, hauls," but fewer of them than I had expected.

At 1 A.M., Wednesday, 10th, halted for luncheon. Calm b. c. – 10°

2.15 A.M. Went on again, still following the old tracks, which as yet are quite asily seen and kept to.

These old floes are much the same as on our first journey, showing no signs of awing or moving; the only difference is that there seems to be less snow, and what ere is is harder; you can't get over them, however, at a greater rate than one ile an hour, on the average, with our present weights.

At 7 A.M. halted, and camped on the floe, taking round of angles:— Calm b. c. – 10° 10 a.m. tent+28° Encamped $13\frac{1}{2}$hrs Luncheon $1\frac{1}{4}$ hrs. Marching 9 hrs.

Gap of Gap Mountain. Zero.				
Cone	88°	43′	30″	5 miles
Joseph Henry Peak	86	9	20	8 „
Mount Julia	57	50	30	8 „
Cape Joseph Henry	86	49	50	8 „
Observation Peak	75	3	0	8 „
Third Hill	47	36	0	8 „
All right of Zero.				
Left of Zero. Mount Pullen ..	110	24	0	18 „
Sun right of Zero	55	14	50	

Time 12h. 53m. 0s. A.M. Watch fast on S.M.T. . 1 m. 29s.

I. E. of sextant – 2° 5′.

These angles were taken before starting in the evening, and not on camping in he morning.

Lorimer has been no better about the legs; I have been obliged to fall him ut several times from the drag-ropes, especially at the rough places, going through ummocks, &c.; his legs appeared rather more swollen this morning, and are stiff and ainful, but not below the knees at all; I bathed them with warm water, rubbed in urpentine liniment, and bandaged.

Course made good, N.N.W. $\frac{1}{4}$ W.
Distance „ „ $8\frac{1}{4}$ miles.
„ travelled $8\frac{1}{4}$ „

Wednesday, May 10th.

Fourth march. Called the cook at 6.30 P.M.: a dull, misty evening; calm. 7.30 p.m., tent + 47° Calm b. c. m. – 2°

9 P.M. Started going on again, as before, over old floes, towards View Point, and till following old tracks. As we approached the grounded floe-bergs and hummocks off iew Point, I deviated from the tracks of our first journey, and followed those of r. Moss, made on his second journey, as they lead by an easier route to the shore, ne floe-bergs and hummocks not extending so far off. We had fewer standing pulls y this route than would have fallen to our lot by the other, the floes not eing piled up and broken so much. Just before reaching the shore we passed two large rounded floe-bergs quite 50 feet above the level of the ice, which make a very good guide r this route when coming from View Point. We got down from the ice on to the hore about $\frac{1}{2}$ mile south of the depôt, and had hard snow to travel on up to it.

At 2.30 A.M., Thursday, 11th, we reached the depôt; on arrival the tent was pitched and sledge unloaded, and depôts got ready for leaving and taking away.

N.W. 2 b. c. m. + 10°

At 3.30 A.M. we had luncheon.

As we came up to the depôt a N.W. wind sprang up, which though it sent the temperature up, made us feel twice as cold as before; however, it soon died away, and was followed by snow and thick mist.

Having taken Lieut. Aldrich's eight-day depôt, and as much of my own sixteen-day as I required, and stowed those that I had brought out, I proceeded to secure the depôt; to do this stones had to be brought down from the hill over it, the ground was much too hard to bury anything; in picking up stones, and not large ones, the pick-axe went short off at the crown, and after that knives and fingers had to be used, making the stone gathering slow work; by 9 A.M. I had got enough to build a stout barricade round and over the depôt.

Whilst securing the depôt one hare and one ptarmigan were seen in the distance.

Calm b. c. m. + 17°
10 a.m., tent + 39°
Encamped 14 hrs.
Luncheon ½ hr.
Marching 5½ hrs.
Securing depot 6 hrs.

At 9 A.M. camped. The snow stopped after an hour or two, leaving only the mist. The men had a game of cards to-night after camping, securing a depôt not being so tiring as dragging a sledge all day.

Lorimer was in no way improved about the legs when we started last night, he fell out from the drag-ropes altogether this march, following the sledge slowly with a stick; he has had a good rest whilst we have been securing the depôt. On looking at his legs after camping I found them more swollen, and he complained that they gave him great pain; I bathed them with warm water, and rubbed in liniment, and bandaged. I have left five out of the seven duffle coats here, taking on two, one for the cook, and one for Lorimer in case his legs do not get better soon, as he finds it rather cold work walking as slowly as he has for the last march.

I left a notice at the depôt to say how it was stowed, the Commander's on the north side, Lieut. Aldrich's on the south, and the remains of mine on top.

Course made good, N.N.W. ¼ W.
Distance „ „ 2½ miles.
„ travelled 3 „

Thursday, May 11th.

9.30 p.m., tent + 41°

Fifth march. Called the cook at 7.30 P.M. A misty evening with a light S.W. wind.

Lorimer was no better, but rather worse about the legs this evening, resting seems to do them no good, I made him walk on as soon as he was dressed whilst sledge was being packed.

The weights on the sledge will now be changed by the gear taken from and left at the depôt, as follows:—

	lbs.	oz.
Lieut. Aldrich's depôt, eight-day	274	8
Provisions for myself to make up to 96 rations	242	0
Weight taken from depôt ..	516	8
Commanders's depôt, part of seven-day ..	300	0
Lieut. Aldrich's depôt, five-day..	116	0
Five duffle coats, and 3 bottles of lime-juice for myself	52	0
Weight left at depôt	468	0
Weight on leaving ship, including constants ..	1,350	0
Four days' provisions consumed	90	0
Weight on reaching depôt ..	1,260	0
Weight added at depôt.. ..	48	8
Weight on leaving depôt ..	1,308	8

In making up my 96 rations, I allowed for 40 lbs. of pemmican that I have in depôt at Bird Point. I had to take on all the rum on account of the tin, having none other

lrge enough with me, and I took all my sixteen days' biscuit, as it being only in bread lgs, I was afraid it might get wet.

9.45 P.M. Started, keeping along the shore close down to the ice, the snow and avelling good; the wind died away soon after starting, and the mist thickened into fog. S.W. 1, b. c. m. + 5°

The snow remained hard and the travelling good whilst crossing View Point, and avelling along the base of the hills to the westward, but as soon as we left them to strike cross the valley to the pass between Observation Peak and Mount Julia, the snow ecame soft, the sledge sinking considerably, and often requiring a standing pull. A asty cold N.W. wind was blowing in the valley right in our faces, and snow also egan to fall.

Friday, 12th. 2.0 A.M. Halted for luncheon about half way between View Hill ad the pass; our progress has been much impeded by having constantly to halt ad wait for Lorimer, who can walk but very slowly through the soft snow, I could ot go on, and let him pick us up at luncheon time, on account of the thick fog and linding snow falling and driving right in our faces by the wind. N.W. 3.4, f. s. + 7°

3.15 A.M. Went on again towards and through the pass, it had become so thick l the time we started after luncheon, that I had to walk on ahead and steer by ompass N.E. by E. This reduced the number of draggers to six, making it hard work the sledge was down to her bottom, and men knee-deep in the snow, standing pulls, nd "one, two, three, haul," becoming the order of the morning. It was a most sagreeable march between luncheon and camping time, heavy hard work dragging the edge, a cold wind blowing right in our faces and driving the snow there too, and a hick fog.

At 7.0 A.M., I halted and camped in the pass, about half way through it at its ghest part. It was rather a short march to-day, but a very tiring one, Lorimer also uld not have gone on any longer.

I found this morning that Lorimer's legs were much swollen from the knees inside the thighs and slightly discoloured as if bruised, he says that they are very iff and painful; below the knees they are all right; he seems quite well in health, not ry much appetite, but then he is not doing any work. Bathed the legs again with ot water, rubbed in turpentine liniment, and bandaged. N.W. 2.3 f. s. + 6° 8.30 a.m., tent + 30° Encamped 12¾ hrs Luncheon 1¼ hrs. Marching 8 hrs.

Woolley has been limping a little this march; he says he sprained his kle a day or two ago, it was a little swollen, rubbed in turpentine liniment, and ndaged; this man was suffering from sore gums when we left the ship; they have got ell since.

Courses made good,	North.	NW by W ½ W.	NW. ½ N.
Distances	„ ¾	1	3½′

Distance made good, 5¼ miles.
Travelled, 5¼ miles.

Friday, May 12th.

Sixth march. Called the cook at 6.30 P.M., a cold raw evening, a N.W. wind lowing, and thick fog. 7.30 p.m., tent + 20° N.W. 2.3, f. + 2°

8.40 P.M. Started, going on through the pass towards James Ross Bay, steering y compass; the travelling was bad, the snow being so soft, quite knee-deep everywhere, nd some places half way up to our middle, the wind of course was in our faces, it lways is in these valleys and passes, no matter which way you are going. Lorimer ad started on ahead, but he could do nothing in the soft snow with his stiff legs, which vere no better again this evening, so he had to be put on the sledge; we were going down ill at the time, but still his extra weight lying along the sledge gave us very heavy ulling. We had not gone half a mile from our camping place, when we were quite topped by the deep snow, all hands sinking almost to their waists, and the sledge urying herself as deep as possible; it became necessary to advance by half loads, the ent and gear, cooking apparatus, &c., and Lorimer went on first, when far enough the ent was pitched, and Lorimer, warmly wrapped up, left there whilst we returned for he second load. The fog had begun to lift at midnight, and by the time the second load vas up to the tent it was clear enough to see nearly across the bay, James Ross, from which we were distant about a quarter of a mile.

After this little bit of half loading, having come about 1½ miles in four hours, I came to the conclusion that I must leave Lorimer behind in a snow house whilst we

went on to Cape Colan with the depôt. His legs have been gradually getting worse ever since we left the ship, and there is not much chance of getting him off the sledge again now for some time, which, as judging from our former journey, there is nothing but soft snow and deep between us and our destination, means half loads all the way there, or from two to three miles a day made good, and our provisions won't stand that; and then if anybody else broke down—Woolley's ankle is no better—we should be regularly done up. At 1.30 A.M. Saturday, 13th, we had luncheon. Whilst it had been getting ready the sledge, with a half load, advanced to James Ross Bay, and I looked about for a suitable place to build a snow house. Both on the land and bay the snow was too soft; close to the shore, however, on the bay, was a large old hummock, which looked promising; we went up to it, and found a capital place. On its weather—western—side was a ditch 12 ft. broad and 25 ft. long, the bottom of which was the exposed surface of the floe, the sides formed by the hummock and snow on the floe. The side opposite the hummock was a drift of hard snow 11 ft. thick nearest the hummock, gradually sloping away to the snow level of the floe about 4 ft. In this drift a house can be made, and Lorimer left with one hand to look after him.

N.W. 1, b. c. m. 0°

At 2.0 A.M. started for the hummock, and by 3.30 A.M. both loads had reached it, the tent pitched, and Lorimer in his bag.

5.30 a.m. N.W. 1 b. c. m. — 5°

The hospital was commenced at 3.30 A.M., and finished at 7.30 A.M., shovel, snow-knife, and saw being used; about a foot in the snow was very hard, being partly ice.

The hospital inside was in shape an oblong, 10 ft. long, 3½ ft. broad, and 5½ ft. high; the bottom was about a foot from the ice, the sleeping place was two feet higher than the other part, the whole breadth of the hospital, and 6 ft. long; the door was 4 ft. high, at the end away from the sleeping place; a small shelf was made at the sleeping end, to put things on, and a stand opposite the door for the cooking gear, &c. All the provisions and gear left behind were stowed opposite the sleeping end.

The following is a list of the things left for the use of the two men who remain:—For the sleeping place, besides the bags, the lower robe, which will be doubled, the sail, and the two duffle coats; for cooking, the stewpan and a pannikin for a lamp, which answers very well, as I had it tried during the morning; medicines, turpentine liniment, flannel and other bandages, lint, and pills. Amusements: a book, "Peveril of the Peak," and the two small packs of cards supplied to each sledge, presented to the Expedition by the Empress Eugénie. For telling the time, a compass belonging to one of the men, and a copy of the true bearings for the month.

The rifle, ammunition, saw, and snow-knife were also left, together with all the provisions, except a week for six men which I take on; this will give us a total weight of 1,000 lbs. to drag.

Vble. light airs, b. c. m. + 6°

At 7.30 A.M. Saturday, 13th, the hospital being finished and everything that is to be left stowed away except sleeping and cooking gear, which goes in this evening, we camped.

Encamped 13¾ hrs
Marching 6¼ hrs.
Luncheon ½ hr.
Building hospital 4 hrs.

All through the pass the snow was much softer than when we passed through it last month.

The line of bearing of the sastrugi was N.W. to S.E., but it was only in places that any was to be seen, most of it having disappeared.

After camping, Lorimer's legs were bathed and dressed as before. They appear much the same; he himself seems rather weak, and is anxious to be left behind, as he feels very much being the cause of extra work to the others.

Woolley has volunteered to remain behind to look after him. I gave Woolley the following instructions:—

To bathe Lorimer's legs night and morning with warm water, rub in liniment, and bandage them.

Give a purgative pill if bowels remained unopened for over two days.

To make him eat as much as he can; at present, if let alone, he would eat nothing.

To give him plenty of lime juice to drink, but no rum.

To make him take daily exercise, if only for a few minutes, in the ditch just outside the door.

If he should get very ill, to walk back to View Point Depôt, and leave a notice there for the sledge coming out with the remainder of the Commander's depôt.

To take exercise himself daily, looking out for hares, &c., and also for drift wood, along the shores of the bay.

I forgot to mention in the building of the hospital that a porch was built outside the door, and blocks of snow stacked for blocking up the entrance, as required in case of a blow. A large police candle was also left to give light if required inside. As it is possible that the dog-sledge may come out here before I get back from Cape Colan, I

planted the spare tent pole, with my flag on it, on top of the hummock, to attract attention. I took the following round of angles from the hummock.—

The cairn on Crozier Island, Zero.	I.E. −2° 10′	
Cape Hecla, left	6° 0′ 30″	7 miles
Guide Hill	123 10 0	6 ,,
Observation Peak, right	125 27 30	2½ ,,
Hill of April 19, left	17 6 40	8 ,,
Mount Julia	173 43 40	1½ ,,
Sun, right	89 26 50	
Time	8 h. 55 m. 30 s.	
Watch fast on S.M.T.	4 h. 1 m. 26 s.	

Course made good. NW ½ W.
Distance ,, ,, 2½ miles; travelled, 5 miles.

Saturday, May 13th.

Seventh march. Called the cook at 6.30 P.M.; a fine evening. As soon as breakfast was over, whilst the sledge was packing, Lorimer was assisted down to the hospital, and put in his bag. The temperature of the hospital this morning with no one inside it was +5°, that of the outer air being — 2°. 7.30 p.m., tent + 45°

At 9 P.M., having said good-bye to Lorimer and Woolley, we started across James Ross Bay for the Parry Peninsula. For the first two hours after starting the travelling was very bad, the snow being so soft, we sank knee-deep at every step, and the sledge was close down on her bottom; it was just as much as we could manage without unloading. Afterwards the snow became harder and we got on better, and by luncheon time had just crossed the bay, passing on to the shore over a low line of raised ice, showing a slight pressure where it touched the land. S.W. 1.2, b. c. m. − 2°

At 1.30 A.M.—Sunday, 14th—halted for luncheon on the east side of the Parry Peninsula. At 2.45 A.M. went on again across the peninsula. At the top of the first ridge on the east side, over the small inlet from the bay, we put up a cairn, leaving a notice to say that it was erected, in case the dog sledge came out, for a record to be left in for the information of Lieut. Aldrich. Vble. light airs, b. c. m. + 5°

The travelling across the peninsula was bad, from the snow on the sides of and between the ridges being so soft, knee-deep as usual; in many places the tops of the ridges were bare; the hills on either side of us are fast losing the snow from their sides and summits.

After crossing the peninsula and getting on to the inlet running in from Parker Bay, we found the snow still softer and deeper, letting us down well above the knees at every step.

At 7.30 A.M. camped about half-way across the inlet towards Point Bird. We are all very tired this morning from dragging through the deep snow all night; it tells on the legs very much; one or two are a little stiff. Calm b. c. m. + 5°
9 a.m. tent + 42°
Encamped 13½ hrs
Luncheon 1¼ hrs
Marching 9¼ hrs

A couple of hare tracks were seen whilst crossing the land. On the ridge, where the cairn is about 50 ft. above the level of the sea and a quarter of a mile from the bay, I picked up a small sea shell.

No sastrugi marks, either on the bay or peninsula. A very nice temperature for travelling in all night.

Courses made good,	WNW.	West.
Distances ,,	5½	2

Distance made good, 7½ miles; travelled, 7½ miles.

Sunday, May 14th.

Eighth march. 6.45 P.M. called the cook; a calm misty evening, with every promise of a fine night. 8 p.m. tent + 37° Calm b. c. m. + 8°

9.0. P.M. The sledge started for Bird Point; snow very soft, letting us sink above the knees. At 10.30 P.M. reached the old camping place at Bird Point, where our 0 lbs. of pemmican was in depôt, which was all correct.

As I was to explore Parker Bay if time allowed, and also erect a cairn over Beverly Point, I determined to do what was possible to-night, but not—with the two sick men, or, rather, the one sick man and his nurse left behind—to give any more time to it. One man was left to look after the sledge, whilst the others went over to Hamilton Bluff over Point Beverly, to erect a cairn and leave a record. I walked up the bay. The snow in this bay was far deeper and softer than any that I have met

with as yet. After having come about one mile, I was floundering in snow up to my middle, and in fact could not get on at all, and had to turn off and make the shore on the western side of the bay. Here the snow was less deep, but still well up to and often above the knees. What makes all the walking so tiring is, that from the consistency of the snow, you must take your foot straight out of the same hole which you make at each step.

Between the ice of the bay and shore was a crack, narrow, not regular. It was impossible to measure the depth with my stick. The ice was slightly raised where it met the land.

The head of the bay was reached at 3.15 A.M., 4½ hours after starting, the distance from Point Bird being about 4 miles in a straight line, the bay running S.S.W., and varying in breadth from 2 to 1½ miles. The east shore of the bay was steep to, bold cliffs having little or no snow on their faces, and varying in height from 300 to 600 ft., terminating abruptly in a low point, about ¼ mile from the head of the bay. Round this point the bay, ¼ mile broad, ran nearly due east for half a mile, and then, narrowing to a few yards, and turning to the southward, was lost apparently as a ravine amongst hills and ridges. I could not get over to follow up this on account of the deep snow, which, 100 yards from the shore, was above the waist; neither was it possible to get round by the head of the bay, which consisted of cliffs and hills rising almost perpendicularly from the ice, with steep deep ravines running down their faces, and varying in height from 800 to 1,500 ft., the deep snow coming up to their feet, and barring all further progress. The west side of the bay was a low shelving beach, from 200 to 300 yards broad, running up to the base of hills varying from 1,200 to 1,400 ft. in height, gradually sloping up from the beach, with their slopes covered with deep snow. Several ravines ran down from them to the bay. This side of the bay terminated at its northern end in a very low spit, running out some half mile into the ice.

I saw several hare tracks along the shore and on the bay, but no living animal; the snow hid all signs of vegetation.

The ice in this bay is apparently one with that which runs right across Clements Markham Inlet and along the coast to the westward. I could find no signs of any crack or join, which is always easily discernible along the land; there were no old hummocks to be seen in the bay, though there are plenty just at the entrance between Points Beverly and Bird.

In the bay a S.W. wind, force 4, was blowing; it was calm all day over at Bird Point.

At 8.0 A.M. we all got back to the sledge.

The cairn was erected on the highest part of the bluff, over Beverly Point; its height was 8 feet, its diameter 5 feet, carried up to a height of 6 feet, and then tapered in. A record was left in a tin, the record being as follows:—

"Arctic Expedition.
"H.M.S. 'Alert,' at Floe Berg Beach,
"Lat. 82·27 N. Long. 61·22 W.
"This Cairn was erected by the crew of H.M. Sledge 'Poppie.'
"Sunday, May 14th, 1876.
"Lieut. Giffard, H.M.S. 'Alert.'
"Thos. Stuckberry ,,
"Robt. Symons ,,
"Wm. Malley ,,
"Geo. Cranstone ,,
"Wm. Ellard ,,
"Belonging to N.W. Survey, under Lieut. Aldrich, H.M.S. 'Alert.'
"All Well."

The snow on the sides of the bluff was very deep and soft; on top a great deal of it had gone; there were no signs of vegetation except a little moss and lichens; no animals were seen, one ptarmigan had been there.

Calm b. c. + 7°
10 a.m. tent + 48°
Encamped 13½hrs
Luncheon 0 hrs.
Marching 1½ hrs.
Building cairn, &c. 9½ hrs.

Monday, 15th. At 8.0 A.M. we camped at Bird Point; it has been a very fine night.

Snow-shoes would have been an immense help to-day and anywhere along this coast with the deep snow through which you can only walk at an average rate of a little more than one mile an hour. A pair supplied to each sledge would be very valuable for exploring purposes, enabling the officer to get inshore and up hills without stopping the sledge, which it is impossible to do at present.

The line of bearing of the sastrugi in Parker Bay was S.W. to N.E.

During the night I took the following compass bearings from a ridge opposite camp at Bird Point:—

Gable Cliff	WNW.	2½ miles
Point left extreme head of Parker Bay	N.W. by W.	3 ,,
Right ,, ,,	NW.	4½ ,,
Cairn on Bluff	North	3 ,,
Camp at Bird Point	E by N.	½ ,,
From right extreme head of Parker Bay		
Camp at Bird Point	SE. ½ E.	5 ,,
Left entrance of Continuation	S.W. by S. ½ S.	1 ,,
Right ,, ,, ...	S.W.	1½ ,,
General direction of Continuation ..	W by N.	

From Camp at Bird Point:—

Cairn on Bluff	N ½ W.	3 ,,
Spit	W by S.	½ ,,
Beverly Point	N by E.	3 ,,

Course made good, West.
Distance ,, 1 mile.
Travelled, 1 mile.

Monday, May 15th.

8.30 p.m. tent + 30° S.E. 4.6, b. c. q. + 7°

Ninth march. Called the cook at 7.30 P.M.; during the day a S.E. wind had sprung up, squally 2 to 5, which, blowing right through the tent, made us feel very cold without a coverlet.

At 10.0 P.M. started across Clements Markham Inlet, the wind being strong and fair, sail was made, the tent being used, our proper sail having been left at Hospital Hummock; we were lucky enough to pick up our old tracks of last month, which gave us a comparatively hard road; the snow on either side was as soft and deep as on our first journey. Between the good road and strong wind we reached our camp of the 20th ultimo in 2½ hours; this had been a day's march double-manned on our first journey. We halted here to get a round of angles.

Cairn on Bluff, Zero. I.E. −2° 9′.

Cape Colan	Right	113°	25′	0″	7½ miles.
Peak over Cape Colan	,,	100	37	40	8 ,,
Giffard Peak	,,	106	55	40	23 ,,
Mountain right of inlet (Mount Wootton)	,,	63	1	0	13 ,,
Low Point, right lower extreme of inlet	,,	52	34	15	15 ,,
Hill, left lower extreme of inlet ..	,,	48	3	10	15 ,,
Gable Cliffs	Left	34	18	40	4 ,,
Ridge opposite Camp, Point Bird ..	,,	62	2	0	3 ,,
Camp, Bird Point	,,	66	49	30	2½ ,,
Cape Hecla	,,	111	28	40	5 ,,

Sun left of peak over Cape Colan, 87° 44′ 00″.

Time, 4h. 46m. 0s. Watch fast on S.M.T., 4h. 1m. 24s.

S.E. 3.4, b. m. + 5°

Soon after midnight the wind began to fall, and a thick mist to creep up from the S.E.

At 2.0 A.M. Tuesday, 16th, halted for luncheon about half-way across the inlet, cooking under the lee of the tent.

At 3.0 A.M. it was calm.

S.S.E. 1.2, b.m. +7°

Tuesday 16th. At 3.30 A.M. went on again for Cape Colan. A light wind, S.S.E., springing up, force 1-2, the tent was still kept set as a sail. A thick fog came on, but did not delay us at all, as we had the old tracks to follow. The spit off Cape Colan, where the depôt is to be left, was reached at 7.45 A.M., when we camped.

10 a.m. tent + 42°
Encamped 14 hrs.
Luncheon 1½ hrs.
Marching 8¼ hrs.

I found the cairn all right, the tracks of one fox round it. Our journey to-day across this floe has been a far easier one than we expected, thanks to our finding the old tracks and to the fair wind.

Just before camping the fog lifted a little, leaving a thick mist in its place.

Course made good, WNW.
Distance ,, ,, 9½ miles.
Travelled, 9½ miles.

Tuesday, May 16th.

7.30 p.m., tent + 35° N.W. 1, b. c. m. + 3°

Tenth march. Called the cook at 6.30 P.M. A little mist hanging about, and light wind from the N.W.

At 8.30 P.M. went up to the cairn with the depôt to leave and secure it. The depôt was secured as follows, the ground was too hard to allow of its being buried: A square hole to the depth of 6 inches was scooped out, just large enough to take the bottom of the gutta-percha case containing the groceries, which was placed in it; round the case on the ground were placed the tins of bacon and pemmican, the rum and lime-juice, on the top a black bag containing boots, sounding and hauling lines, &c.; round and over these, to secure them from the attacks of animals, were placed large and small stones; the large ones had to be brought over in sledge loads from the western ridge on this spit, about 400 yards distant, and were difficult to get out of the ground.

N.W. 1.2, b. c. m. + 5°

Wednesday 17th. At 3 A.M. we had luncheon, and at 3.30 A.M. went on securing the depôt. A solid mass of stones, both large and small, was built up round the gear. The diameter of the bottom, including the depôt, was 10 feet; this was carried to a height of 2½ feet, then the diameter was reduced to 7 feet, continued to a height of 3½ feet from the ground, and finished off with large stones, making a total height of 5 feet, and a diameter at the top of 4 feet. A staff was secured upright at the top, with a notice to say how the depôt was secured, and the deep sea thermometer, which I had brought out, secured to it as the safest place.

The canvas boat was secured with a banking of earth 6 feet due west of the cairn, with the oars left standing upright to mark its position, in case of a heavy fall of snow.

N.W. 1, b. c. + 9° 9 a.m. tent + 52° Encamped 12¾hrs Luncheon ½ hr. Securing depôt 10½ hrs.

At 7.30 A.M. the depôt was secured, and we camped again on the spit just below it.

Whilst securing the depôt two snow-buntings were seen flying about over the western ridge, and during the day we heard them chirping round our tent.

No vegetation was seen, except a little moss and a few lichens.

The following round of angles was taken from the cairn:—

Peak over Cape Colan, Zero. I.E. −2° 9′.

Cape Stuckberry ..	Right	73° 14′ 30″	3½ miles
Giffard Peak	,,	71 0 0	15 ,,
Point Moss	,,	70 8 10	5 ,,
Cape Colan	,,	54 47 30	0½ ,,
Cairn, Hamilton Bluff ..	Left	92 50 40	8 ,,
Gable Cliff	,,	94 21 0	10 ,,
Camp, Bird Point ..	..	108 40 20	9½ ,,
Mount Julia	,,	109 34 40	18 ,,
Observation Peak ..	,,	116 42 0	20 ,,
Cape Hecla	,,	129 5 40	12 ,,

Sun left of zero, 112° 32′ 40″

Time, 11h. 34m. 0s. Watch fast on S.M.T., 4h. 1m. 22s.

Wednesday, May 17th.

7.30 p.m., tent + 25° South 3.4, b. c. + 8°

Eleventh march. Called the cook at 6.30 P.M. A fine evening, with a southerly wind.

8.45 P.M. Started on return journey across Clements Markham Inlet, following our outward tracks, which gave us a good road, it was soft enough on either side of us.

The sledge is light enough now we have only 530 lbs. to pull. The wind fell soon after starting, making a most beautiful evening for travelling; as we crossed there was a good view of the inlet to be had. It appeared to be only a deep bay, the high land behind being continuous the whole way round; it must be about 18 miles deep, the land at the head consists of a mass of snow-covered peaks, some of which must be quite 3,000 feet high.

S.W. 1.2, b. c. m. + 2°

At 1.15 A.M., Thursday, 18th, halted for luncheon about two-thirds of the way across the inlet.

5.30 A.M. passed the camping place at Bird Point; saw a large white bird in the distance flying across the peninsula, most likely an owl.

Several times since leaving the ship on this journey the clouds have assumed the

autiful shape and colour of iridescent masses of mother-of-pearl; to-night they have en extremely beautiful, and so has the snow, covered with brilliants, showing all the lours of the rainbow, sparkling and glittering in the sun.

At 7.0 A.M. camped about half-way across the Parry Peninsula; on camping the llowing round of angles was taken:— N.W. 3.4, b. c. + 9°

Encamped 13¼hrs
Luncheon 1¼hrs
Marching 9 hrs

Hill opposite and south of camp, Zero.		I. E. — 2° 9′	
Peak over Colan ..	Right	114° 2′ 30″	12 miles
Cairn, Hamilton Bluff..	,,	88 14 0	6 ,,
Observation Peak ..	Left	70 22 20	6 ,,
Joseph Henry Peak ..	,,	76 20 10	9 ,,
Cairn, Crozier Island ..	,,	96 19 30	3 ,,
Sun	,,	69 3 30	

Time, 11h. 21m. 30s. Watch fast on S.M.T., 4h. 1m. 21s.

Courses made good, ESE.		East.
Distances ,,	9½	2¼
Distance ,,	11¾ miles.	Travelled, 11¾ miles.

Thursday, May 18th.

Twelfth march. Called the cook at 6.45 P.M., a little N.W. wind and mist. 8 p.m. tent + 35°

At 9.0 P.M. started, going over the Parry Peninsula for James Ross Bay; the travellin vs not at all good, the snow being so soft. At 10.30 P.M. the wind came more to the estward and increasing in force, the tent was set as a sail, at the same time a thick st came on. N.W. 1, b. c. + 10°

At 1.30 A.M., Friday, 19th, halted for luncheon on the floe in James Ross Bay, a it was still very thick we did not push on for fear of missing the hospital; during ncheon the mist suddenly cleared away, and the hospital showed out about ¾ of a le ahead West 2.3, b. c. m. + 9°

The following round of angles was taken:—

Observation Peak, Zero.		I.E. — 2° 9′	
Guide Hill ..	Right	99° 12′ 00″	5½ miles
Gap Mountain ..	,,	93 38 50	9½ ,,
Third Hill ..	,,	71 30 40	3 ,,
Mount Julia ..	,,	44 4 30	2½ ,,
Cairn, Crozier Island ..	Left	123 12 50	3 ,,
Cape Hecla ..	,,	131 29 0	6 ,,
Sun		73 56 30	

Time, 5h. 52m. 0s. Watch fast on S. M. T., 4h. 1m. 20s.

Whilst taking the angles Woolley was seen to be coming to meet us from the spital. On getting up to us, he told us that altogether Lorimer was no better, and ill certainly have to go back to the ship on the sledge; his legs are not so much vollen as when we left him in the hospital, but are very stiff and painful; he took a ttle exercise daily, but it has not taken away the stiffness; he also now complains of re gums and loose teeth, and has very little appetite, not caring at all for the pemmican, ut liking the bacon still.

Woolley himself is quite well, having got ever his stiffness.

The snow all about the hospital and neighbouring land was too deep and soft to llow of any extended walk being taken; no living thing was seen during our absence, nce Woolley thought he heard the scream of a gull.

The hospital was never too cold, nor did the wind bother them at all, the great iscomfort was the damp from the melting inside whilst the men were asleep. The me has passed very slowly, and would have been very dull if it had not been for the mpress's cards, which afforded great amusement to the men, who are delighted with hem.

At 2.45 A.M. went on for the hospital, Woolley and another hand having gone on get the things ready; on reaching the hospital, which we did at 3.20 A.M., we all went to see Lorimer, who was very glad to see us again; he was very weak and low pirited, quite unable to walk, or do anything almost, without help.

The temperature inside the hospital with two people in it was +34°, the outside ir being +9°.

At 4.0 A.M. we left the hospital; the weight to be dragged had now been increased W.S.W. 4, 5, b. c. m. q. s. + 9°

to 740 lbs. by the weight of the things taken from the hospital, and Lorimer with his clothes on, about 170 lbs. more, making a total weight of 910 lbs. to drag. We made sail to a fresh breeze from W.S.W., which had sprung up during our halt at the hospital, the snow in the pass had become much harder since our outward journey through it on the 13th instant, and with the help of the sail we managed to drag the sledge up to the top of the pass, with Lorimer on it, without unloading; it was a very hard drag, standing pulls most of the way up.

Shortly after starting Lorimer nearly fainted away; 40 drops of sal-volatile however, just saved him; he was well covered up and did not feel cold on the sledge.

As we went on it became very thick, snowing heavily, and the wind freshening a little and getting more round to the southward. At 7.30 A.M. camped in the pass near the east end, it was too thick to see more than a few yards.

S.S.W. 4.6, f. s. q. + 15°
9.30 a.m., tent + 35°
Encamped 13½ hrs
Marching 8½ hrs
Luncheon 1¼ hrs
At hospital 40 min.

Examined Lorimer's legs after camping, they are less swollen than on the 13th, are slightly discoloured as if bruised, feel hard, are stiff, and give much pain; as before, this only extends from the knees upwards, no stiffness being felt or swelling visible below them; rubbed in turpentine liniment and bandaged; the gums are rather drawn back from the teeth and are white and spongy, a slight attack of scurvy in addition to the legs; ordered lime juice three times a-day. Whilst crossing the Parry Peninsula one snow-bunting was seen, and on this side the tracks of a fox in the pass.

Courses made good,	East.	ESE.
Distances „	1	9½

Distance made good, 10½ miles.
Travelled, 10½ miles.

Friday, May 19th.

Thirteenth march. Called the cook at 6.30 P.M. The wind had died away during the day, and it was a dull misty evening, with snow. It was a great improvement, having the proper number in the tent and the coverlet again, it was cold at nights without them, especially for the outside sleepers.

Before starting Lorimer's legs were rebandaged; he was too weak to walk at all, though he tried whilst the sledge was packing.

7.30 p.m., tent + 52°
Calm o. m. s. + 16°

At 8.30 P.M. started, going on for View Hill. Very soon after starting Woolley had to fall out, his legs and ankles being so stiff that he could not drag and keep up with the sledge. The rest in Hospital Hummock did not do him much good. On the way towards View Point several fossils were picked up. There are a great many in the ravine at the foot of the View Hills; with one man on the sledge, and another likely to be, it was no use our stopping to get any quantity.

At 1.0 A.M., Saturday, 20th, we reached the depôt at View Point. I found that Mr. Wootton, Engineer, had been out with the remainder of the depôts. We unpacked the sledge, and unstowed the depôt to get the remainder of our own depôt, which will alter our weights as follows:—

	lbs.	oz.
Remainder of 16 days' provisions and packages	193	8
Duffle coats and lime juice	52	0
Total weight added	245	8
Present weight, including sick man	890	0
Total weight to be dragged	1,135	8

Calm o. c. m. s. + 17°

At 1.30 A.M. had luncheon, and then at 2.0 A.M. resecured the depôt, bringing down stones for that purpose in the sledge from the side of the hill over the depôt; the tent was pitched, and Lorimer put inside in his bag. The stones were very hard to get out of the ground, and it took till 7.0 A.M. to get enough to secure the depôt, which was secured against the attacks of all animals likely to come near it; it would not have withstood the attack of bears, but then it is certain there are none about here now. It would take at least another whole night, if not more, to secure it against them with the small stones about here, and as another sledge is sure to be out here soon, I do not feel justified in remaining any longer with one man so weak and ill, and another broken down.

Whilst securing the depôt, four hares were seen, one venturing within range was

ot for supper, the others kept at a very respectful distance; several snow-buntings ere flying and chirping round us all the morning.

A reindeer horn, a caterpillar, and a few fossils were picked up whilst digging out e stones.

A cold N.W. wind sprang up during the morning. It always seems to blow at this rticular spot.

At 7.0 A.M. camped, and had stewed hare for supper; both Lorimer and Woolley mplaining that the bones hurt their teeth and gums; both these men have scurvy, as ell as bad legs. They will have lime juice at least three times a day until we reach e ship. I stopped Woolley's grog as well as Lorimer's.

N.W. 2.4, o.c.m.s. + 15°
8.30 a.m., tent + 36°
Encamped 13 hrs.
Luncheon ½ hr.
Marching 4½ hrs.
Securing depôt 5½ hrs.

Lorimer's legs were very stiff and painful this morning, but not much swollen. He very weak, has hardly any appetite; his gums are sore, he complains that he cannot eep, and is a little feverish.

Woolley's legs are stiff from knees up inside thighs, right foot and ankle much ollen.

Rubbed liniment into and bandaged the legs of both men.

A great deal of snow has gone off the land here since our outward journey, the ummocks and floebergs along the shore are losing their covering of snow, and long icles hanging down from them show the power of the sun, and that the thaw has gun.

Whilst at the depôt this morning my chronometer watch stopped for about half hour.

Courses made good,	SE. by S½S.	SE by E½E.	South.
Distances ,,	2½	1	¾

Distance made good, 4¼ miles; travelled, 4½ miles.

Saturday, May 20th.

Fourteenth march. Called the cook at 6.30 P.M. It has been windy all day, and st before starting snow and mist came on. Both the sick men were much the same is morning, legs stiff and painful; Woolley started on ahead with a stick as soon as e had had his breakfast, so as to lose no time; he is not able to walk as fast as we n drag the sledge.

8.45 P.M. Started along the shore under sail towards the place where we take the ummocks. Passing through the hummocks we saw many signs of the thaw, such as inges of icicles round the floebergs, and also the greater quantity of snow that ad gone from off them, leaving the ice exposed, and again the greater softness of the now on the floe.

7.30 p.m., tent + 40°
West 2.4, m. s. + 19°

We soon caught up Woolley, and after that had to go on very slowly, his legs being o stiff to enable him to go at all quickly.

At 1.0 A.M. Sunday, 21st, halted for luncheon. The wind had fallen a little, but ore snow and fog.

West 2.3, o. f. s. + 19°

2.15 A.M. Went on again, following our outward tracks; these in many places were overed with snow; however, that did not bother us much, as we had one infallible uide, viz., tobacco juice; one of the crew chews a great deal, which is a very good thing hen you want to return by the same route as you go out on if over snow; nothing ver seems to hide it, *i.e.*, the marks made in the snow by spitting it out, and the eye is aught at once; other marks made by cocoa and tea, &c., get obliterated very oon.

We travelled on over old floes and through ridges of hummocks, slowly all the morning. A great deal of snow seems to have gone from off these floes, both by its decreased depth and the number of blue-topped hummocks—now uncovered—showing ll over them.

6.15 A.M. Halted and camped on the floe just abreast of Cape Hercules, and about ne mile from it; the mist was too thick to allow of any angles being taken.

West 1.2, c. m. s. + 20°
8 a.m. tent + 46°
Encamped 13¾ hrs.
Luncheon 1¼ hrs.
Marching 8¼ hrs.

Short journeys will now be the order of the night, until we reach the ship. I do not expect Woolley to keep off the sledge for longer than another march.

Having a man on the sledge makes her pull very much heavier than his weight alone would account for. It obliges the weights to be spread out over the sledge too much.

Lorimer was much the same on halting this morning—weak, feverish, and no appetite, legs painful and stiff; he tries to take a little exercise every day, both when we halt for luncheon, and whilst the tent is being pitched in the morning; it is not very much, however, as he requires support to stand. I have to insist upon his eating, and watch him eat to get him to take anything except lime juice.

Woolley was stiff and tired when we halted; his foot and ankle were not so much swollen, but his legs were more so, and gave him much pain; his appetite is also going.

The legs of both men were bandaged again after rubbing in turpentine liniment; they both have their bowels open.

Course made good, SSE $\frac{1}{4}$ E.
Distance made good, $5\frac{1}{2}$ miles; travelled, 7 miles.

Sunday, May 21st.

Fifteenth march. Called the cook at 7.15 P.M. A dull misty evening, light snow falling, no wind.

Lorimer was about the same this evening; he complains a great deal of want of sleep, but this is partly fancy, as I have found him asleep both on the sledge and in the tent.

Woolley was very stiff, but able to walk on slowly.

Calm m. o. s. + 23°.

9.15 P.M. Started going over old floes towards Depôt Point, following outward tracks as before; the travelling was better than on our outward march, the snow not being so deep or soft; we travelled slowly on account of Woolley, who is fast giving in, his feet and ankles being bad this evening. Shortly after starting I thought we should have to put him on the sledge; however, he got a little better, and managed to get on; I do not want to increase the weight to be dragged, if it can be avoided, as I am afraid of others among the crew breaking down.

N. W. 1, m. o. s. + 22°

At 1.30 A.M., Monday, 22nd, halted for luncheon, about $1\frac{1}{2}$ miles from Depôt Point. At 2.45 A.M. went on again towards the point, reaching the old camping place opposite the depôt at 4.15 A.M. The depôt was in good condition, and we supplemented it with a 40-lb. tin of bacon, and a 56-lb. tin of pemmican, decreasing the weight on the sledge by 123 lbs.; the dog sledge has been out here lately, by the tracks, but no notice has been left by the party.

After leaving Depôt Point, we had a nasty bit of travelling up to camping time, the snow on the floe being soft and knee-deep, so soft that even our light sledge sank down in it; Woolley was still walking on, being less stiff since luncheon, and very anxious to keep off the sledge as long as he can possibly do so.

West 1, o. m. s. + 24°
10 a.m., tent + 50°
Encamped 15 hrs.
Luncheon $1\frac{1}{4}$ hrs.
Marching $7\frac{3}{4}$ hrs.

At 6.15 A.M. camped on the floe about one mile east of Depôt Point.

Whenever it has been sufficiently clear to see the land since leaving View Point, the change in its appearance has been very remarkable, from the quantity of snow that has disappeared from off it; round Depôt Point the tide cracks were numerous, and the snow on the floe in the neighbourhood very slushy, wetting canvas boots and moccasins through; the floebergs were dripping, had long icicles hanging down from them, and had lost most of their snow covering, looking quite blue in consequence.

Lorimer was much the same this morning, legs stiff and painful from knees upwards, no appetite, weak, feverish, and very low spirited, gums are also looking bad; he gets as much lime juice as he wants, and has his legs rubbed and bandaged every morning.

Woolley was very stiff about the legs and ankles; he will go on the sledge when we start this evening; his gums are also rather bad, but he is much better in every way than Lorimer; bandaged and rubbed liniment into his legs.

Courses made good,	SSE $\frac{1}{4}$ E.	SE by E $\frac{1}{2}$ E.
Distances ,,	$4\frac{3}{4}$	$1\frac{1}{4}$.

Distance made good, 6 miles.
Travelled. 7 miles.

Monday, May 22nd.

Sixteenth march. Called the cook at 7.0 P.M.; a cold foggy evening, no wind.

Both patients much the same this evening.

8 p.m. tent + 44°
Calm f. s. + 1°

9.0 P.M. Started, following old tracks towards boats; Woolley had tried to walk on, but soon had to give in, and was put on the sledge with Lorimer; putting him on will bring the weight to be dragged up to 1,135 lbs. again, the same as we left View Point with.

For the first two hours after starting, the travelling was very bad, the snow on the floes being so soft, and two men on the sledge, brought her runners nearly straight, by spreading the weights too much, and making it much harder work to drag the sledge; after getting off the soft snow we came to the old floe with so many blue-topped hummocks

that lies between Simmons Island and the boats; the snow had entirely disappeared from the tops of these hummocks, leaving them bare, blue, and very slippery; here we had difficult work in getting the sledge along, the hummocks were too close together to be avoided, and it was necessary to go over them; they were all small ones, from 3 to 5 feet above the level of the snow, with rounded tops; between the hummocks the snow was soft. The tops being so slippery gave only very bad footing, making it hard to drag the sledge up, and when the sledge got on top it slipped off rather too quickly, sometimes broadside on, much to the discomfort of the two sick men on it; we were only able to get on by standing pulls, and so made very slow progress. At 1 A.M., Tuesday, 23rd, halted for luncheon on the floe close to the boats, having got through the hummocks. During the night the temperature has risen considerably. At 2.15 A.M. went on again, reaching the shore at 2.30 A.M., and then keeping along it towards Harley Spit; all the hummocks and floebergs along here show the action of the sun very plainly by their fringes of dripping icicles and change of colour from the white of the snow, which covered them in the early spring, to the blue of the now exposed ice. Calm, f. s. + 19°

The travelling along the land was very good, the snow being quite firm and hard.

At 6 A.M. halted and camped on the floe in Dumb-bell Bay, about three-quarters of a mile from Harley Spit; still a thick fog, no wind. We shall have a long rest to-day, as it is of no use starting till late this evening, or we should reach the ship with everybody asleep. Calm f. s. + 18°
11 a.m. tent + 50°
Encamped 14¾ hrs
Luncheon 1¼ hrs
Marching 7¾ hrs

The two sick men are much the same, both looking pale and weak. Lorimer much the worst, he is still feverish, but the certainty of getting on board to-morrow has done them both good. Bandaged and rubbed liniment into their legs, which are stiff and give much pain; they are not very much swollen, neither has the slight discolouration increased.

Courses made good ..	SE by E ½ E.	W by N.	SSE.
Distances ,, ..	4	2	½

Distance made good, 6½ miles.
Travelled, 7 miles.

Tuesday, May 23rd.

Seventeeth march. Called the cook at 8 P.M.; a misty evening, with snow falling. 9 p.m. tent + 46°

10 P.M. Started. Invalids much the same. Travelling pretty good across Dumb-bell Bay, but not so in Ravine Bay, where the snow was soft and heavy. Calm m. o. s. + 17°

At 2 A.M., Wednesday, 24th, halted for luncheon at the foot of the ridge at Mushroom Point.

At 3.30 A.M. went on again, the slope up to and over the ridge was very slippery, and the top of the ridge bare in most places; we had to get Woolley off the sledge and help him over first, and then drag the sledge up and across with Lorimer on it, Woolley getting on again as soon as we had crossed. The travelling along the ice from Mushroom Point to the ship was very good, the floebergs the whole way along were fringed with immense icicles all dripping, they have also lost a great deal of their snow covering. Along the shore great quantities of snow have disappeared, leaving the land bare. The tide cracks have considerably increased in number since we passed here last, and there are many slushy places which would make leather boots desirable if we were at the beginning instead of the end of a journey. Calm m. o. s. + 15°

At 7.30 A.M. halted for a few minutes to hoist our colours, and at 8.30 A.M. arrived alongside the ship.

The following are the names of my crew on this journey:—

Thomas Stuckberry, Capt. M. Top., Captain of the Sledge.	William Malley, A.B.
William Lorimer, A.B.	Robert Symons, A.B.
William Woolley, A.B.	George Cranstone, A.B.
	William Ellard, Pte. R.M.L.I.

In concluding my journal, I cannot speak too highly of the way in which my crew behaved, doing their work most thoroughly and cheerfully at all times.

The following is my experience as regards the quality of the clothes and provisions supplied for sledging:—

The duffle jumpers were very warm, too warm to be worn whilst dragging, unless blowing hard; most of my crew had to cut them down, making coats, on account of the difficulty of getting them on and off through their shrinking.

The duffle trousers were excellent; they, however, want a chafing piece outside between the legs, and all the button-holes should be of a single part of the stuff instead of double as at present.

The snow jumpers and trousers were very good, but all required to be made larger.

Guernseys were very bad, giving little or no warmth, and wearing out very quickly.

Boot hose were good, the white being the best; the chamois leather on the heels of the grey was a mistake, as it invariably got wet and froze to the moccasin, tending to pull the heels out of the boot hose in getting them off at night.

Moccasins were very good, wearing splendidly.

Drawers were very inferior, wearing out in no time. The grey mitts and the Shetland were very good, the latter shrinking rather too much, perhaps.

Comforters were rather too short.

Sealskin caps were very warm, they were too heavy to travel in as a rule, unless it was very cold.

The hand stockings, made on board of duck lined with flannel, were capital things, keeping the hands warm during the day and the feet at night.

All the provisions were very good; the two things most liked were the bacon and the compressed tea, which was excellent.

The pemmican biscuit was liked as a change, or mixed with the other, but though very satisfying it was very dry.

All courses and bearings and the direction of the wind are true, unless stated to be compass.

I have the honour to be, Sir,
Your most obedient servant,
GEORGE A. GIFFARD, *Lieut.*

LIEUTENANT WYATT RAWSON. ORDERS TO 10TH APRIL. SLEDGE JOURNAL, 10TH TO 18TH APRIL.

H.M.S. "Alert," Winter Quarters,
10th April, 1876.

MEMO,

Taking command of H. M. Sledge "Arrowe," equipped and provisioned for sixteen days, and having the "Clements Markham," commanded by Mr. G. Le C. Egerton, Sub-Lieutenant, attached to you.

You are to hurry across Robeson Channel, starting from the Black Cliffs, merely improving the road sufficiently to allow your own light sledges to pass.

Having arrived on the Greenland shore, you are to endeavour to ascertain whether a better road exists than the one by which you have advanced.

This duty performed, and having left your spare provisions in depôt, you are to re-cross the strait, marking and improving the road.

If it is necessary for Lieutenant Lewis A. Beaumont, who is about to follow you with heavily laden sledges, to deviate from your outward track, you are to hasten your return. Otherwise, any information which you can gather with regard to the nature of the ice on the Greenland shores, and the probability of the travellers obtaining game, will repay a short delay.

G. S. NARES, *Captain,*
Commanding Expedition.

To
Lieutenant Wyatt Rawson.

16th of August, 1876.
H.M.S. "DISCOVERY," at Discovery Harbour.

SIR,

Geo. Bryant, 1st C.P.O.
Geo. Stone, 2nd C.P.O.
Michael Regan, A.B.
John Simmons, 2nd C.P.O.

IN obedience to your orders I have the honour to inform you that I left H.M.S. "Alert" on the 10th of April, at 11 p.m. with H.M. sledge "Arrowe" (ladder sledge), manned as per margin, and H.M. sledge "Clements Markham," drawn by 7 dogs, and commanded by Mr. G. Le C. Egerton (sub-lieutenant); the weights on the former sledge being 560 lbs., and on the latter 540 lbs.

The following is a copy of my journal.

Tuesday, 11th April.

12.40 a.m.—Got round Cape Rawson, during which evolution the "Arrowe" capsized wice, so we shifted the cooking apparatus on to the dog sledge for fear of its being njured. Put up a rocket staff at the depôt.

3.50—Got round the Black Cape and arrived at the 5-man tent; the "Arrowe" capsized three times in getting round this cape.

Lunched. Put up a staff at the snow hut depôt, and secured the record tin to one of the tent poles.

4.55 a.m.—Started, leaving the 5-man tent pitched at the Black Cape. Proceeded by the road which the men had cut and reached the first floe at 5.50 a.m. S.E. 3. b. c. zero.

7.30 a.m.—Encamped about a mile and a half from the shore. S.E. 1. o. c.

The ladder sledge has capsized six times during this march, but she is easily righted, and seems very good over hummocks if she could only keep upright. Made good 8m. Travelled 9m. Travelled 7½h.

There is no condensation in the tent, which is a great blessing. Calm. o. s.

As we are only 6 in an 8-man tent we have plenty of room. Air −6°. Tent + 25°.

2nd Journey.

5.5 p.m. called the cook. Calm o. s.

We find that the 8-man cooking apparatus burns more than the 6 men's allowance of spirit, so we had to eat bacon cold instead of "gushy." Air −5°.

7.40 p.m.—Started.

9.45 p.m.—Reached the large floe.

10.15 p.m.—Started, steering S.E. by E. (true), as it is too thick to see Greenland. Calm o. s.

Took tent on the dog sledge, and went ahead to pitch and light up for lunch with Egerton. Air −11°.

11.40 p.m.—Pitched tent.

Wednesday, 12th of April.

Midnight.—Man-sledge arrived. Lunched. Calm o. s.

12.55 a.m.—Started; weather very thick. Air −11°.

4.40 a.m.—Encamped about ¼ of a mile from the eastern edge of the large floe. Tent +9°.

The first half of this floe the snow was hard and the travelling very good, but the latter half the snow was very soft. Made good 8m. Travelled 9m. Travelled 7½h.

Put a bandage on the calf of Bryant's leg, as it is a little painful. Air −9°.

"Arrowe" capsized four times this march. Tent +13°.

(3259)

Third Journey.

4.5. p.m.—Called cook. Calm b. c.

Took a round of angles from large hummock on east side of large floe.— Air −24°.

Peak in Repulse Harbour	Zero
1st Gap	12° 45′
Cape Brevoort	35 53
Cape Sumner	47 10
Cape Lupton	60 12
Cape Frederick VII	88 1
Middle of Lincoln Bay	94 22
Arthur's Seat	103 46
Cape Union	Zero
Mount Pullen (?)	20 22
Black Cape	27 24
Cape Rawson	38 12

Index Error —2′.

8.10 p.m.—Started, having left No. 8 flag on top of hummock.

Travelling over small floes and "rubberly stuff."

Saw a large white owl flying towards Greenland; this is the first bird I have seen this year.

Thursday, 13th April.

Air −34°.
Tent +14°.

12.5 a.m.—Pitched for lunch.

Egerton picked up three small rounded stones on the floe, about 10 miles from land.

I filled Regan's ear with cotton-wool as he has a slight ear-ache.

It is too thick for angles

Calm b. c.
Made good 5½m.
Travelled 7m.
Travelled 8¾h.
Temp. :—
Shade −17°.
Sun Zero.
Tent +10°.

1.10 a.m.—Started. Travelling over small floes and rubble.

My chronometer is an hour out, I find, both by Egerton's and also the sun.

6.—Encamped. All hands very sleepy. "Arrowe" capsized 12 times this journey, and twice turned completely bottom up, but she pulls light and seems made of whalebone, she bends so.

Smashed the head off the ice chisel.

4th Journey.

Calm f.
−14°.

6.45 p.m.—Called cook.

10.30.—Started. Thick morning.

Travelling pretty good over small floes and rubble. There appears to have been very little pressure about here.

Regan's ear rather painful.

The sun dried a great many things on our line last night, even with a temperature of −14°.

Friday, 14th April.

Calm b. c.
−24°.
Made good 7½m.
Travelled 10m.
Travelled 8h.

2.30 a.m.—Pitched for lunch. Observed a very bright parhelion

4.30 a.m.—Started. Travelling very fair.

8.30 a.m.—Encamped. "Spliced the main brace."

5th Journey.

N.E. 1 to 2. o. s.
−24°.

6.45 p.m.—Called cook.

10.30 p.m.—Started. Travelling over small floes and rubberly stuff.

11.30.—Put up staff with numeral pendant on large hummock.

Saturday, 15th April.

N.E. 1. o. s.
−28°.
Made good 5m.
Travelled 7m.
Trav. 3h. 40m.

2.10 a.m.—Arrived at the shore hummocks off the south cape of Repulse Harbour. Encamped and turned in as it is very thick.

We find the sun has great power to dry our clothes, even at this low temperature.

The "Arrowe" has capsized so often I can't log it.

6th Journey.

N.E. 1 to 3 o. s.
−28°.

10 a.m.—Breakfast. Set men about carrying the depôt ashore.

1.30 p.m.—Landed in Greenland and planted Egerton's and my flags.

N.E. 2 to 3.
−28°.

2.0 p.m.—Started with Egerton and the dog-sledge (empty), along the coast to the north. We travelled round Repulse Harbour and about 4 miles to the north, and found this all good travelling. A N.E. wind, however, in our faces, did not add to the warmth of riding on a dog-sledge.

Saw one fox track.

N.E. 3 to 4 o. s.
−34.

6.30 p.m.—Got back to tent.

Bryant had buried the depôt on the land foot and marked it with a staff.

Depôt consists of—

Pemmican	56 lbs.
Bacon	5 „
Biscuit	18 „
Chocolate	1½ „
Preserved meat	50 „ (dog's meat).

Put a bandage on Simmons' leg.

7th Journey. Sunday, 16th April.

6.15 a.m.—Called cook.

9.10 a.m.—Started back for Grantland. Fine morning, but cold wind and several ost-bites about the face and hands. N.E. 1 to 2 b. c. —30°.

1 p.m.—Pitched for lunch. N.E. 1 to 2 b. c. f. —37°.

It being Easter Sunday, Egerton suggested it was the proper thing to wear some- ing new, so he put on a wollen hood instead of his fur cap, and suffered a good deal in onsequence of a cold wind which sprung up. N.E. 1 to 2 b. c. f. —37°.

During lunch I got a round of angles from a large hummock.

Cape Stanton	zero	
Repulse Harbour, N. cape	49°	34′
„ „ S. cape	87	30
1st opening or gap	112	30
Cape Brevoort	126	18
„ Sumner	130	0
Cape Brevoort	zero	
„ Sumner	3°	48′
„ Lupton	10	0
„ Union	88	34
Black Cape	99	28
Cape Rawson	104	50

I.E. + 2′.

3.20 p.m.—Started.

4.0 p.m.—Marked a floe, with letter R flag on top of a large hummock. Passed a ix-track about 8 m. from the land.

5.45.—Put No. 0 flag (Blue Peter) on large hummock. N.E. 1. b. c. —38°.

8.0 p.m.—Encamped.

Temperature in tent whilst cooking "gushy" + 26°. Open air — 38°. Made good 12m.

The "Arrowe" has capsized to-day as much as usual, even though most of the gear now on the dog-sledge. Travelled 16m. Travelled 8½h.

Monday, 17th April.

6 a.m.—Called cook.

10.15.—Started. S.W. 1. b. c. m. —39°.

My chronometer stopped through cold, its bag having got outside my waistband hilst on the march.

Bryant's big toes, Regan's heel, and Stone's fingers slightly frost-bitten; put ycerine on all of them.

12.—Left a flag (red cornet) on top of large hummock.

2.35 p.m.—Pitched for lunch.

Took angles from top of hummock.

Cape Brevoort	zero	
„ Sumner	11°	38′
Gap	20	2
Cape Lupton	24	8
„ Beechey	47	8
„ Frederick VII.	53	3
Arthur's Seat	70	50
Highest Cliff	78	28
Ravine (1)	85	15
„ (2)	96	48
Cape Union	102	10
Black Cape	127	40

I.E. —2′.

4.30 p.m.—Started. Crossing large floe. Wind very cold, and we found our left or eather arms quite numbed from the cold wind, and the men had to shift their positions a the drag-ropes continually. S.W. 4 to 5. — 25°. South 5 to 6. b. c. z. —24°.

8.15 p.m.—Encamped on the west edge of the large floe, having passed to the south f the "Affirmative Flag" which we had put up on our outward journey. Made good 14m. Travelled 16m. Travelled 8h.

Tuesday, 18th April.

Calm. b. c. −10°.

7.30 a.m.—Called cook.

10.45.—Started across the hummocks to the land.

1.30 p.m.—Reached the land. Came across two 8-man sledge-tracks which I suppose must be Beaumont's and Coppinger's.

2.40.—Arrived at "Black Cape." Lunched.

4.—Started, having left our tent, three pickaxes, one shovel, and our boatswain's bag at the Black Cape.

Simmons' leg very painful; made him walk on ahead.

We lashed the "Arrowe" astern of the dog-sledge, the dogs and men dragging together.

Took each sledge separately round Cape Rawson, in doing which, three of the dogs got adrift, one of which we caught, but the other two got away to the ship.

8.0 p.m.—Reached the ship.

We found that two of the uprights of the ladder-sledge had carried away, owing to the numerous times that this sledge capsized. This sledge, in my opinion, is not well adapted for this kind of work, owing to her being too narrow for her height, which gives her a great tendency to capsize, but with longer battens to widen the sledge, I think this would be prevented.

The travelling from Black Cape to Repulse Harbour, although better than I expected it would be, will be slow work for heavy sledges, and I think would take quite six days to get across.

I must also thank you, Sir, for allowing Mr. G. Le C. Egerton to accompany me, not only for the companionship, but for the great assistance which he rendered me; it is mainly owing to his help and the splendid way in which he managed his team of dogs, that we were able to complete this journey in so short a time.

My men, also, all worked most cheerfully, and I am glad to be able to inform you that, with the exception of Simmons' leg being a little swollen, and a few trifling frost-bites, the whole party have returned to the ship in good health.

I am, Sir,

Your most obedient Servant,

WYATT RAWSON,

Lieutenant R.N.

H.M.S. Discovery.

Captain G. S Nares, R.N.

Weights for H.M. sledge "Arrowe"—

8-man tent	43 lbs.	Ammunition	6 lbs.
5 tent-poles	32 „	Medical box	14 „
Lower robe	23 „	Sextant	7 „
Coverlet	30 „	Ladder-sledge	65 „
Sail	8 „	12 battens	9 „
2 5-man troughs	11 „	Span lashings, &c.	12 „
Boatswain's bag	20 „	1 rifle	7 „
6 sleeping bags	54 „	3 spirit and rum cans	58 „
6 knapsacks	72 „		4)556 lbs.
6 duffles	48 „		
4 pickaxes	30 „		
1 shovel	7 „		per man 139 lbs.

WYATT RAWSON.

SUB-LIEUTENANT GEORGE LE C. EGERTON. ORDERS TO 10TH APRIL, SLEDGE JOURNAL 10 TO 18TH APRIL. ORDERS TO 2ND MAY. SLEDGE JOURNAL 2 TO 9TH MAY. ORDERS TO 11TH MAY. LETTER TO CAPTAIN FEILDEN, 11TH MAY. SLEDGE JOURNAL 11 TO 25TH MAY. ORDERS TO 25TH MAY. SLEDGE JOURNAL 27 MAY TO 3RD JUNE. SLEDGE JOURNAL 15 TO 23RD JULY.

H.M.S. "ALERT," Winter Quarters.
10*th April*, 1876.

MEMO.

TAKING command of H.M. Sledge "Clements Markham," equipped for 16 days, you will accompany Lieutenant Wyatt Rawson in his journey across Robeson Channel, assisting him as much as possible in his duty.

On your recrossing the strait, you are to return to the ship.

G. S. NARES, *Captain,*
Commanding Expedition.

To
Sub-Lieut. Geo. Le C. Egerton.

SIR,

IN accordance with your instructions dated April 10th, 1876, I have the honour to inform you that I took the command of H.M. Sledge "Clements Markham," drawn by 7 dogs, and provisioned for 16 days, and that I accompanied H.M. Sledge "Arrowe," under the command of Lieut. Rawson, to Crossing Harbour, Greenland, and back, leaving H.M.S. "Alert" on April 10th, and returning on board on April 18th. The following are the details of my journey :—

Monday, April 10*th*, 1876.

First journey. The two sledges left the ship at 11 P.M. in company, but from the very first the dogs refused to keep station astern of my senior officer, so I went on ahead, sitting on the sledge to keep them back as much as possible. The "Clements Markham" was loaded with all the provisions, and the cooking stove, luncheon bag, pannikins, &c., the total weight amounting to 585 lbs., or 83$\frac{4}{7}$ lbs. per dog.

The crew of the "Arrowe" consisted of four men, viz. : Geo. Bryant (Captain), Michael Regan, Jno. Simmons, and Geo. Stone.

The "Arrowe" is a ladder sledge, its length is 16 feet 5 inches, breadth 2 feet, and 10$\frac{3}{4}$ inches high. At Cape Rawson I had to wait until the other sledge came up, and then we hauled one sledge round at a time. After this, Lieut. Rawson walked on ahead of the dogs, and so we proceeded at a more reasonable pace. We soon found that the dogs walked away from the men quite easily. We reached the Black Cape at 2.30 A.M., but finding it impossible to get the sledge round by ourselves, carried the cooking gear round and lit up for lunch, and then returned to bring up the sledges. It was not until 3.50 that both sledges were round, by which time the water was nearly boiling, and we soon had tea ready. Eating our bacon in the middle of the night was not such a difficult task as we expected it would be, and considering it was our first attempt at night travelling, we did full justice to the meal.

A road which had been previously made through the hummocks enabled us to get on to the first floe, a small one, without much difficulty, bringing one sledge up at a time ; by the aid of four pickaxes, we were soon on the next. Between each of these smaller floes there is a hedge or barrier of hummocks, which has to be cut through with pickaxes ; as this work takes some time, we were only on the third floe at 7.30 A.M., when we encamped. After our tent was pitched, we hung up all our canvas overalls, blanket wrappers, &c. to dry, notwithstanding that it was rather thick, no sun to be seen, and a light snow falling. I found the eight-man tent very much more comfortable than the five-man tent, certainly there were only six of us in it, but the great advantage is the breadth of it, instead of one's feet and head being close up to the sides of it, there was plenty of room to move and kick out when seized with cramps without disturbing one's neighbours. All our fuel is spirits, so we cook inside the tent. Temperature while cooking, 2 feet from ground + 29°, top + 31°.

Temp, air — 6°
Wind calm.
Weather o. s.

Made good, 7 miles.
Travelled, 9 ,,
Hours on the march 7$\frac{1}{2}$.
,, for lunch, &c., 1.

April 11*th.*

Weight per dog, 89¾ lbs.
Air — 5°

Second journey. At 5.55 I was roused out for cocoa, having had the best night's rest I have experienced yet out sledging. It just makes all the difference, travelling at a temperature of — 40° or — 10°, in the former case it is absolute misery, in the latter bearable, in neither comfort. We find our allowance of fuel, viz., a quart per diem of rum, barely enough, at any rate until the cook gets into the habit of being as economical as possible, so this morning we could not afford fuel to make our gushy, so went without. Our clothes which we hung up outside the tent to dry were just a little better than when we put them out, which we considered a very satisfactory result.

Temp. air — 5°

By 7.40 we were under way, picking a road towards a large floe; at 10 o'clock we reached it. Finding we could get along much faster than the "Arrowe," the tent and poles were placed on the "Clements Markham," increasing the weights by 66 lbs. The floe was covered with a hard crust of snow, which here and there was not strong enough to bear; but the travelling was good for the first three miles, when the crust became thinner and softer, making the travelling more heavy in consequence. Under this crust the snow was in large granulated particles, much the same as large hailstones. At 11.40 stopped for lunch; we were able to pitch the tent and get the tea well under way before the "Arrowe" came up. At 1 o'clock started away again. During lunch it came on foggy, so we were obliged to steer by compass; this necessitated numerous stoppages to correct our course. At 4.40, having reached the extremity of the large floe, and the weather showing no signs of clearing, we encamped.

Temp. air — 9°
,, tent + 10°
Wind N. 2
Weather c. m.

Distance made good, 8 miles.
,, travelled, 10 ,,
Hours on the march, 7½.
,, for lunch, &c., 1¾.

April 12*th.*

Weight per dog, 89 lbs.
Air — 24°
Wind calm
Weather b. c.

3rd journey. We were under way by 8.10. Lieut. Rawson having taken a round of angles, found that the large floe extended further than we thought; but after leaving it, we came to a great deal of rubble and small floes, sometimes coming to a small patch of this season's ice. The land misty all day. We were much astonished to see a bird; it was flying just above the snow, but out of range of our guns, and was soon lost to view; its flight resembled that of an owl. I found a few stones on the floe, which I have given to the naturalist.

Temp. air, shade — 17°
Temp. air, sun, zero.
Tent + 10° to + 30°

Distance made good, 5½ miles.
,, travelled, 7 ,,
Hours travelling, 9.
,, lunch, &c., 1.

All very sleepy, having had rather heavy work.

April 13*th.*

Weight per dog 88⅞ lbs.

4th journey. At 10.33 started. Travelling over small pieces of floe and a great deal of boulder ice between them. At 2.30 pitched tent for lunch. 4.30 started. As we got on we found more extensive floes of heavy ice, and with hard snow on them. Round these there was a wall of hummocks 10 to 30 ft. high, but the pieces which these walls are made up of are not of any very large dimensions, and there are not signs of very much pressure having taken place. In places where there was a gap in the hummocks we were able to estimate the height of these large floes above the young ice, and I should say they varied from 3 to 10 feet. The snow drift at these places was generally a hard inclined plane, making a very, good sledge-way on to these Palæocrystic floes. During the greater part of the day it was very misty over the land on both shores. At 8·30 encamped.

Temp. air — 24°
Wind calm
Weather o. c. m.

Made good, 7½ miles.
Travelled, 12 ,,
Hours travelling, 8.
,, lunch, &c., 2.

Bryant's toes have been slightly frostbitten, and, strange to say, my nose was frost-bitten in my bag.

April 14th.

5th journey. 6.30. Called cook at 10.30; started. A very raw day; several frost bites, all small ones. At 2.10 we had reached the shore hummocks of the Greenland coast. Being very foggy, it is no use landing; so decided to camp and have a few hours' rest before commencing our day in Greenland.

Weight per dog 84 $\frac{4}{7}$ lbs.
Temp. air — 24°
Wind N.E. 1.
Weather fog.

Made good, 5 miles.
Travelled, 7 „
Hours travelling, $3\frac{1}{2}$.
„ lunch, &c., nil.

Saturday, April 15th.

At 10 o'clock we had breakfast, after which Rawson and I landed, taking the dogs and empty sledge. The shore hummocks at the point where we landed are about 50 yards broad, but not very large, except those actually against the shore, one of which is about 60 feet high. On shore the snow was very hard and level. We started to the northward in order to find out what description of travelling the "Discovery's" sledge crews might expect. We landed at the southern side of the so-called Repulse Harbour, which is really no harbour whatever, but a straight line of coast, with a low level plain running back about two miles inland, where there is a low line of hills about 200 ft. high, a lake at the back of them, and then the cliffs. From cliff to cliff this plain is about $3\frac{1}{2}$ miles long, the travelling being excellent; but after rounding the northern cliff, the snow is very much cut up by the wind, the line of Sastrugi running at right angles to the shore. We went about six miles along the coast; saw no tracks, with the exception of one old one, which might have been either a hare or fox, but was too much covered with snow to say which. There was too much snow on the land to find out the direction of the stratification, but there is the same slaty formation we have at our winter quarters.

When returning with the dogs we turned in towards the lake, but the wind increasing we returned to camp. We found several raised beaches, specimens from which I brought on board. During our absence the men had landed the provisions we can spare to leave in depôt, viz., pemmican, 56 lbs., bacon, 5 lbs., biscuit, 18 lbs., chocolate, $1\frac{1}{2}$ lbs., preserved meat, 50 lbs.

Temp. air — 34°
Wind S.E. 4
Weather o. c.

Simmons complained of a pain in his leg, so Lieut. Rawson has bandaged it.

April 16th.

Easter Sunday. 6.15. The cook was roused. A fine morning, but a nipping wind; several slight frostbites. Foggy over Grant land. Followed our old track pretty closely, making for the direction of the Black Cape. At 11.55 passed our last encampment, and at 1 P.M. pitched tent for luncheon. The cook allowed the wicks of the spirit lamp to burn down, which caused a delay; it was not until 3·20 that we were under way again. Passed a fox-track leading in a north and south direction. At 4 P.M. marked the floe with a red flag on hummock, the track leading a little south of it. At 5.45 placed a "Blue Peter" flag on hummock, track a little to the north of it. At 8 P.M. encamped.

Weight per dog, 69 lbs.
Temp. air — 30°
„ tent — 15° to + 15°
Wind N.E. 2
Weather b. c. m.
Temp. air—37°
Wind N.E. 1—2
Weather b. c. m.

Made good, 12 miles.
Travelled, 16 „
Hours travelling, $8\frac{1}{2}$.
„ Lunch, &c., $3\frac{1}{2}$.

Temp. tent 9 p.m. —10°
Temp. tent 10 p.m + 20°
Temp. air — 38°

April 17th..

6.0, Roused cook. 10.15 started. A fine morning, but misty over the land. Bryant's big toe was frostbitten, but was recovered easily. Simmons' leg rather worse and of a reddish color like a bruise, but he can get on all right, so I don't think it is anything serious. 12.0, left a red flag on top of a hummock. As we get out into mid-channel the wind becomes stronger, and it is very cold. 2.35, pitched tent for lunch, just on the edge of the large floe. At 4.20 started. On the large floe, where there were no hummocks to give us any shelter, we were exposed to the full force of the wind, which, however, was on the beam; we found blinkers very useful, Lieut. Rawson having lost his used his Prayer Book as a substitute, which he found to answer very well, but it was not quite large enough. We all felt intensely cold on our left sides (the weather side), my arm, which was bent, steering the sledge, became so numbed that I could not straighten it for some time. As we approached the shore the wind died down, and soon it fell calm. We passed about two miles to the southward of the Affirmative

Weight per dog 74 $\frac{5}{7}$ lbs.
Temp. air — 39°
„ tent — 5°
Wind S.W. 1
Weather b. c. m.
Wind S.W. 3
Wind S. 5—6
Weather b. c. z.

Wind S.E. 1—2
Weather b.c.

Flag, which was the first one we placed, as we found the large floe went in about a mile closer to the land, at a distance of $1\frac{1}{2}$ miles from the cairn at false Cape Union. At 8.15 we pitched the tent close to the shore hummocks, and about $\frac{3}{4}$ mile from land.

Temp. air — 24°
.. tent + 10°

Made good, 14 miles.
Travelled, 16 ,,
Hours travelling, 8.
,, lunch, &c., 2.

Tuesday, April 18th.

Weight per dog 77 lbs.

At 7.30 called the cook. A bright sunshine and no wind; we were very late, having overslept ourselves. At 10.45 started, making straight for the land; we had to cut away with pickaxes all the way, taking us $2\frac{3}{4}$ hours going $\frac{3}{4}$ mile. Simmons' leg disabled him from dragging, so we sent him on ahead. At the Black Cape we stopped for lunch, and after rounding it I took the "Arrowe" in tow, and, the dogs and men working together, we got along at a good pace. The snow was lying rather deeper than when we left. Arrived on board at 7.30 P.M.

Temp. air in sun + 2°

Made good, 7 miles.
Travelled $8\frac{1}{2}$,,
Hours travelling, $6\frac{3}{4}$.
,, lunch, &c., 2.

During the whole journey the dogs have been in very good condition for work, and have had no fits. By picketing them at night well away from the tent and sledge, we were never troubled by their gnawing sledge lashings or getting at the provisions.

I have the honor to be, Sir,
Your obedient servant,
G. LE C. EGERTON, *Sub-Lieut.*

To
Captain Nares, R.N., F.R.S.,
Commanding Arctic Expedition, 1875-6.

Weights at starting.

	lbs.	oz.
5-man sledge, complete	50	0
8-man trough	6	0
1 rifle	8	0
Haversacks, compass, telescope, &c.	10	0
1 pickaxe	8	0
8-man cooking stove	26	0
Luncheon bag, pannikins, &c.	14	0
100 rations	253	0
Provisions for dogs	210	0
Total weight ..	585	0

Weight per dog .. .. $83\frac{4}{7}$ lbs.

Additional weights after starting.

2nd journey.	8-man tent, 5 poles, 1 pickaxe=74 lbs.	* Weight per dog, $89\frac{4}{7}$ lbs.
3rd ,,	Coverlet=30 lbs.	* Weight per dog, 89 lbs.
4th ,,	Lower robe=23 lbs.	* Weight per dog, $88\frac{5}{7}$ lbs.
15th April.	Provisions left in Depôt — $130\frac{1}{2}$ lbs.	
	6 sleeping bags .. + 54 ,,	
	Decrease in weight=$76\frac{1}{2}$ lbs.	* Weight per dog, 74 lbs.

* The weight of provisions consumed by the two crews and dogs is deducted.

H.M.S. "Alert," at Floe Berg Reach.
2nd May, 1876.

Sir,

Taking command of H.M. Sledge, "Alert," provisioned up to the 16th May, you are to cross Robeson Channel, establish a depôt of provisions at the position chosen by Lieutenant Beaumont on the Greenland Coast, and then proceed to Polaris Bay. In placing the depôt, on which the lives of those in advance will depend, the utmost care is necessary to secure it against the attacks of bears and foxes, and to protect it from the thaw, which is sure to set in before Lieutenant Beaumont returns to it in June. A rocky foundation above the level of the surrounding land should be chosen, and the packages should be completely covered with *heavy* boulders.

Lieutenant Beaumont has requested that the provisions "may be placed on the west side or down-hill side of the large stone that marks the position." He has built a conspicuous cairn, from which the depôt stone, marked with a flag, bears W.N.W. (true) 300 feet.

A canvass boat and a spare sledge-runner are to be left at the depôt.

Dr. Coppinger's sledge party is provisioned up to the 10th May; after that date he is dependent on the depôt you are advancing for further supplies.

H.M. Sledge, "Clements Markham," under the command of Lieutenant W. H. May, will leave this ship to-morrow for Polaris Bay.

Should you meet Dr. Coppinger before reaching Polaris Bay, and the "Clement's Markham" is in company, you may give up the command of the "Alert" to that officer, and with the two men of your party belonging to this ship, join Lieutenant May, following out such orders as he may give you.

A party from the "Discovery" is expected to arrive at Polaris Bay about the 16th May: should you not meet an officer belonging to that ship before the above-mentioned date, you are to return to this ship with Lieutenant May, leaving the "Alert's" crew under the command of George Emmerson, Chief Boatswain's Mate, with instructions to remain at the Polaris depôt until he receives further orders from Captain Stephenson.

As the despatch you are conveying to Dr. Coppinger cancels his former instructions, and orders him to proceed to Polaris Bay instead of returning to this ship, it is important. You are to fix it in as conspicuous a position as possible at the depôt, to ensure his finding it.

In proceeding from the depôt to Newman Bay, you are to explore a route overland to the eastward of Cape Breevoort.

Any information you obtain relating to the route (bearing in mind how different everything will be after the thaw has set in in June) is to be left recorded at Lieutenant Beaumont's Depôt; he may have to cross the land on the 10th June.

G. S. NARES, *Captain, R.N.*
Commanding Arctic Expedition.

To
Sub-Lieutenant George Le C. Egerton,
H.M.S. "Alert."

Sir,

In compliance with your letter of May 2nd, 1876, afterwards cancelled by that of May 4th, I have the honour to inform you that I took the command of H.M. Sledge "Alert," manned by 7 men, and provisioned up to the 16th May, and proceeded across Robeson Channel, arriving at Repulse Harbour on May 7th, where I gave over the command of H.M. Sledge "Alert," together with depôts, &c., to Dr. Coppinger, of H.M.S. "Discovery;" and with Thomas Smith, R.M.L.I., joined H.M. Sledge "Clements Markham" under the command of Lieutenant May, leaving Repulse Harbour on May 8th, and returning on board this ship on May 9th. The following are the details of my journey:—

May 2nd, 1876.

At 10 P.M., left the ship with an eight-man sledge, crew as named in the margin, Smith and Malley belong to H.M.S. "Alert," and the rest to H.M.S. "Discovery." We are provisioned for 14 days, and carry a depôt, collapsible boat, and spare sledge runner, to be deposited at Repulse Harbour for the use of the North Greenland sledge parties.

Geo. Emmerson, Acting Chief P.O. (Captain).
James Cooper, P.O. 2nd Class.
Geo. Stone, P.O. 2nd Class.
Alf. Hindle, A.B.
Thos. Smith, Private R.M.L.I.
Wm. Malley, A.B.
Dav. Thores, Ice Quarter Master.

At Cape Rawson Mr. White took a photograph of the dog and 8-man sledges being hauled up the nip by a party from the ship who had come out to assist me round this first stumbling block in the southern route. After a short delay we were on our road towards the Black Cape. At 10 o'clock we had got to the Half-way Cliff, when it struck me that the North Greenland party had not, as it was originally intended that they should do, taken their pemmican and bacon with them; feeling uneasy in my mind about it, and it being a matter of considerable importance, I decided to return to the ship to make certain, so leaving Geo. Emmerson in command of the sledge, with orders to have lunch at once, and afterwards to go on to the Black Cape and pitch the tent for the night on the outer side of the shore hummocks, I returned on board, when, having reported the cause of my return to you, I received your orders to remain on board for the night.

May 3rd.

Left the ship at 5 P.M., with a satellite sledge drawn by Jno. Thores, Ice Quartermaster, and Geo. Leggett, Ship's Cook, the latter being one of the proper crew of the "Alert," but was left behind, having been snow-blind when the sledge started, his place being filled by Wm. Malley, A.B. As we had 150 lbs. of provisions to drag we thought we would make use of the two dogs "Bruin" and "Starver," which were fit for light work, but not up to the mark for the regular team, but before we had gone far "Starver" had a very bad fit, from which I did not expect her to recover, so left her, but "Bruin" worked well and was of great assistance. Reached the tent at 8.45, which was pitched on the first floe outside the hummocks, found the men asleep, but they had had their breakfast; made some tea for those returning to the ship, packed the sledge, transferring the weights from the small to the large sledge, and sent Wm. Malley and Jno. Thores back to the ship with the satellite sledge, and at 11.45 we proceeded on our journey.

Wind N.W. 3.
Weather o.

Having a fair wind we made sail; whenever we came to a piece of floe the sail assisted us immensely, and even between hummocks, by bracing up on either tack as required, we found it of use. Reached the large floe at 3.30 A.M., over which we went at a rattling pace, the men having to run occasionally to keep up with the sledge. We were following the old tracks, but these becoming quite imperceptible on account of the thick drift, and to steer by compass with any hopes of picking up the track again being quite out of the question, we encamped at 6.15, taking advantage of a hummock for shelter, it being the first one we had seen for more than an hour.

Wind N.W. 5—6.
Weather z. m.

I noticed a very peculiar circumstance upon a new floe between two others, before we got upon the large floe. The old tracks of the sledges were distinctly visible upon a mound of broken pieces of ice, which must have arisen since the sledges passed, for it stood about 5 feet high, and all around it is perfectly level hard floe.

We all had very good appetites and found our allowance of pemmican none too much.

Leggett's eyes are all right, but I make him wear spectacles continually both inside and outside the tent. My eyes were feeling rather sore, from looking for tracks, which were very difficult to distinguish.

Temp. in tent, —6°.

Made good, 6 miles.
Travelled, 10 miles.
Hours travelling, 6½.
,, for lunch, &c., nil.

Third Journey. Called the cook at 4 P.M. Under way at 7 P.M. A clear day, so I am able to see my position. I find we must have run considerably to leeward yesterday, and that we must have mistaken other marks on the floe for sledge tracks. I think I should have gained had I pitched when we first lost the sledge tracks. At 10 P.M. sighted the Blue Peter, and reached it at 11 P.M., when we pitched the tent for lunch. At 12·30 started. Travelling generally fair, but bad in places where the snow was soft. I don't like the dragging through deep snow. I much prefer the "one," "two," "three," "haul" over hummocks, if it is not too long, to the slow funereal step, continual strain, and slow progress which deep snow invariably entails. Camped at 4.10.

Temp. air — 15°
Temp. in tent at lunch + 2°.
Wind S. 1.
Weather b. c.

Temp. air — 10°.
,, tent + 7°.

Made good, 5 miles.
Travelled, 8 miles.
Hours on the march, 7¾.
,, for lunch, 1½.

We had just settled ourselves in our bags for the night, when the cook sighted the dog sledge coming towards us. Lieut. May, who was in command, brought me orders cancelling my former ones, and directing me to return with him from Repulse Harbour. As he was going to take a round of angles, he roused me out to sketch the coast line which was rather cold work, the temperature being —10°, and a good breeze blowing from the southward.

Fourth Journey. Called cook at 8.15. Started at 11.15. Lieut. May soon went ahead of us with the dog sledge, and we followed in his tracks. At 3.30 stopped for lunch; a very slow cook to day, he kept us waiting nearly two hours for our tea, and when we did get it we found it quite brackish. 5.30. Under way. Travelling chiefly over hummocks, a few small floes now and then. 9.50. Pitched.

Temp. air — 2°.
,, tent + 15°.

Made good, 6 miles.
Travelled, 9 miles.
Hours on the march, 8½.
,, for lunch, 2.

Temp. air − 12°.
,, tent + 30°.
Wind S. 1—2.
Weather b. c.

About an hour before pitching the tent, we saw some black animal not very far hind us. I was getting the gun ready, when we found it to be old "Bruin;" upon scovering he was seen he turned tail and made off.

Fifth Journey. Called the cook at 7.15. Under way at 10. Very good travelling. assed the numeral pendant. 1.50. Pitched tent for lunch. Our course to-day has en too much to the southward to make use of our sail. At 3 o'clock under way, ade sail and got along at a brisk pace, travelling very good. Hit off the road through e shore hummocks, and were soon on the land. Saw Lieut. May's tent a short stance further on, so we pitched ours close to it, and while doing so we saw r. Coppinger's party coming round the corner. Lieut. May was away with the dogs. he accounts of the North Greenland party were not very good. They were all well, t the travelling was very bad indeed. 11.30. Lieut. May returned.

Air + 7°.
Tent + 25°.
Wind S. 3—6.
Weather b. c.
Temp. in tent + 25°.

Distance made good, 5 miles.
,, travelled, 6 miles.
Hours travelling, 5½.
,, for lunch, &c., 1¼.

May 7th and 8th.

Turned over the sledge "Alert" and all the gear, viz:—the depôt for the two edges, "Sir Edward Parry" and "Discovery," a spare 5-man sledge runner, and a llapsible boat and oars, to Dr. Coppinger, who places the depôt. The "Alert" has ne days' provisions left. The first part of the day was occupied in looking over rovisions, preparing the place for the depôt, &c., and after lunch Thomas Smith R.M.L.I.) and I joined Lieut. May's party, and at 3.30 A.M. started upon the return urney. Removed the flags as we came to them, but several we did not see. Arrived our camp of the 5th of May at 9 A.M., where we pitched the tent. Among other ings taken over by H.M. Sledge "Alert" to Greenland, was a photographic apparatus, hich I was taking with the intention of getting some photographs of Polaris and ewman Bays, but now the programme having been altered, I am taking it back to the ip. Never having taken a photograph in my life before, and having only had five inutes' instruction in the art, I was rather anxious to see what the result would turn ut, so persuaded May and the crew to stand while I took a photograph of the camp, dogs, nd crew. I was some time getting ready, focussing, &c., and got very cold. When all as ready I took the cap off, out watch, and took the time—two minutes—May getting npatient—three minutes—I burst into a fit of laughter, as I suddenly remembered I ad not drawn the slide off the plate. May was furious. After a great deal of persuasion got them to stand again, and this time everything went off satisfactorily, except that could not find the cap to put over the lens for some few moments.

Temp. air + 8°.
Wind S. 2—3.
Weather b. c.

Miles made good, 10.
,, travelled, 15.

Calm b. c.
Temp. air + 10°.

May 8th—9th.

The cook was roused at 8 P.M., and we were under way by 11.30. Reached the end of the large floe at 3.30 A.M., and had lunch. Started at 5 A.M., and arrived on board this ship at 9 A.M., having been 14 hours actually under weigh between Crossing Harbour, Greenland, and the ship. We left "Bruin" and "Soresides" on the floe in fits, neither of them are of much use.

Distance travelled, 20 miles.
,, made good, 15 ,,
Hours on the march, 8.
,, for lunch, 1½.

The list of weights at starting is attached.

I have the honour to remain, Sir,
Your obedient servant,
G. LE C. EGERTON, *Sub-Lieut.*

Captain G. S. Nares.

Weights

Constant Weights.	lbs.	oz.
Sledge complete, and drag-ropes, &c.	98	0
Tent	44	0
„ poles..	25	0
Coverlet	30	0
Lower robe	22	0
Sail	9	8
Waterproof floor cloth	13	0
8 Sleeping bags	70	0
Knapsacks..	80	0
2 Pickaxes..	16	0
1 Shovel	6	8
Cooking gear	29	0
Guns and ammunition	15	0
Sundry bag	10	0
Medical stores	3	0
Collapsible boat	48	0
Spare sledge runner	10	0
Cook's bag..	10	0
Photographic gear	26	0
Total	565	0

Provisions.	lbs.	oz.
Pemmican	84	0
Biscuit	98	0
Bacon	28	0
Potatoes	14	0
Rum	14	0
Chocolate	7	0
Sugar	14	0
Tea..	3	8
Stearine	35	0
Tobacco	3	8
Salt	1	12
Pepper	0	5¾
Total	303	1¾

	lbs.	oz.
Depôt	260	0

Total.	lbs.	oz.
Provisions	303	1¾
Depôt	260	0
Constants	565	0
	1,128	1¾

	lbs.	oz.
Weight per man	161	2

H.M.S. "Alert," at Floeberg Beach.
11th May, 1876.

Sir,

Taking command of H.M. Sledge, "Clement's Markham," provisioned for 14 days, you are to proceed on a journey of exploration amidst the United States range of hills.

Captain Feilden, R.A., will accompany you. As your surveying duty does not call for any particular line of route being chosen, you are to be guided in this respect as much as possible by his wishes.

Should you happily discover any large game, you are to endeavour to deposit a notice to that effect at the cairn at Depôt Point before noon on the 18th inst., on or after which day Mr. Wootton will visit the depôt. He has instructions to bring on board any supply which may have been obtained.

I have also directed Lieut. Giffard to call at Depôt Point on his return.

G. S. NARES, *Captain, R.N.*
Commanding Arctic Expedition.

To
Sub-Lieutenant George Le C. Egerton, R.N.

H.M.S. "Alert," at Floeberg Beach.
11th May, 1876.

Sir,

The duties of placing depôts of provisions for the support of travellers on their return journeys having been satisfactorily completed, I have the pleasure to inform you that H.M. Sledge, "Clement's Markham," under the command of Sub-Lieutenant G. Le C. Egerton, and equipped for 14 days, is about to proceed on an exploring party amidst the United States range of hills.

As this duty does not demand any particular route being adopted, I have ordered Mr. Egerton to consult you as to your wishes, and to be guided by them as much as possible.

G. S. NARES, *Captain, R.N.*,
Commanding Arctic Expedition.

To
Captain H. W. Feilden, R.A., Naturalist, Arctic Expedition.

H.M.S. "Alert."

SIR,

I have the honour to forward for your information the account of my proceedings while in command of H.M. Sledge "Clements Markham," between the 11th and 25th of May, 1876.

1st. Journey. At 11 P.M. on May 11th, left the ship with the dog-sledge "Clements Markham," drawn by six dogs, Jas. Self, A.B., and Frederick, the Eskimo, as crew, with Captain Feilden, R.A., and Mr. Thos. Mitchell, Asst. Paymr., in company. We are provisioned for 14 days, and take a theodolite and photographic apparatus with us. Mr. Wootton, in command of H.M. Sledge "Sultan," left the ship at the same time, but notwithstanding our heavy weights, the dogs soon went ahead and we parted company. Not wishing to tax the dogs, which are dragging nearly 150 lbs. apiece, intend doing a short journey to-day. Arrived at Mushroom Point at 1.30, and pitched the tent for lunch. At 3.30 started off again, crossed over the point into Ravine Bay, where the travelling was excellent. The weather became very thick, and it commenced to snow. At 6.45 encamped about ½ a mile from the boats. We found it so warm in the tent that the Cook was obliged to take his coat off, the first time I have seen it done out sledging.

Dogs: "Black face" (King) "Sal" "Ginger" "Boss" "Topsy" "Flo."

Temp. in tent before lunch + 28°
after ,, + 65°
Temp. in tent + 60°

Distance travelled, 13 miles.
Hours on the march, $5\frac{3}{4}$.
,, for lunch, 2.

2nd Journey. Called the Cook at 5. Under way by 8.30. A cloudy morning, but the land is visible low down, though the upper part of it is obscured in mist. Took to the floe at the boats, and made for Simmons Island. The snow soft, with a crisp surface; our progress is slow. 11.45, stopped for lunch; pitched the tent; at 1.30, under way. The sudden fall of temperature, with a N.E. wind, made it seem very cold, but cleared away the mist. My nose frostbitten again; I shan't have any left soon, for though these slight frostbites are nothing, they cause the skin to peel off, which is decidedly unpleasant, to say the least of it. After passing Simmons Island this morning we made for Depôt Point, but finding it rather hummocky we struck in for the shore about a mile to the southward of it; this place we reached at 2.30, and pitched the tent, intending to make this our head quarters for a day or two, it being in a convenient position for exploring the western side of the bay. We have fixed upon a hill about 10 miles from here from which we expect to get a view into two valleys, one leading out of Black Cliffs Bay to the westward, and the other from a bay to the N.W. of Depôt Point; this will be our trip to-morrow.

Temp. air + 10½°

Temp. air − 5°
,, tent + 28°
Wind N.E. 2.

When the tent was pitched, and we had refreshed ourselves with some lime juice, we walked to the top of Depôt Point, I took a round of angles by compass, which I found excessively cold work. Got back to camp at 6.30, by which time the sun had come out, and being under the cliffs and well sheltered from the wind we found it quite hot.

While eating our dinner heard the chirping of a bird, which we assumed to be the note of Plectrophanes Nivalis. Self rushed to the door with a rifle, thinking we were talking of Ursus Maritimus, and so it escaped our ken. This is the first chirp of a bird I have heard this year.

Miles travelled, 9.
Hours on the march, 7.
Bearings by compass from Depôt Point:

Conical Hill	80°	
Observation Peak	69	
Pap	28	
Cheops	10	30
Constitution Hill	346	30
Mount Pullen	248	
Furthest Greenland ..	200	

May 13th and 14th.

12.0. Left camp with Feilden, Fred, and dog sledge; a cloudy day, but looks as if it would clear up. The chronometer has run down, but I saw enough of the sun to set it again.

Remarked Mr. Wootton's camp on the floe about 1 mile outside us. Passed the Black Cliffs, and examined them; the snow is melting rapidly on them, though they are not clear yet. Underneath these cliffs there is a young floe with hardly any snow upon it, the dogs took us over this at a great pace. Landed at the ravine to the southward of the cliffs, and found it was of no extent, and would not lead us in the direction we wished to take. Here we found a great quantity of shells, all of the same kind, sticking up in the mud as if the sea had left them only a few months ago. Retraced our way past the Black Cliffs, at the end of which we saw two ptarmigan, which were shot; called it Ptarmigan Point. A short distance further on we entered a harbour, at the end of which was a ravine leading up to the foot of the hills, with a good gradual slope all the way. The vegetation on the southern side of the ravine was very abundant, I must add, *for this country.* Saw another ptarmigan and a hare, but could not get them.

Temp. air + 12°

Feilden and I walked up to the top of the hill, which we called Constitution Hill, as it tried ours, found it to be 1,450 feet; it was too cold and two cloudy to do much at the top of the hill, but I took a round of angles by compass.

Temp. air + 6°
N. 2 o.

When returning we saw six hares, but all very wild, called it Hare Ravine. Got back to camp at 9.0 A.M. During our absence Mr. Mitchell and Jas. Self went to Victoria Lake and tried to dig a hole through the ice to see if they could catch any fish, but for the want of an ice chisel they were unsuccessful; they, however got down to a depth of 5½ feet by means of the pickaxe which they had converted into an ice chisel. The temperature at the bottom of the hole was + 22½, while that of the surrounding air was + 12.

Temp. air + 10°
„ tent + 18°
N. 3 b. c.

Miles travelled, 10.
Absent from camp, 9 hours.

May 15th.

Left camp at 3·30A.M. At Depôt Point placed a three days' depôt for our return journey. I should have mentioned that we are removing everything to-day further north. To the westward of Depôt Point the snow was soft and deep, the travelling was very heavy, the sledge runners sink into the snow, 4 inches. 6·30. Stopped for lunch. To day is one of those days which are most unpleasant, a dull day and a strong glare, and one cannot see under foot, consequently one stumbles at every slight inequality on the snow, and walking becomes irksome. 8·30. Under way again, snow becoming harder as we get on. After rounding a low spit we suddenly came upon the mouth of a ravine leading into a grand valley running in a westerly direction. This ravine forms a natural gateway to the valley; it is only about 500 yards long in the neck or narrow part of it, and not more than 80 yards broad, cliffs on either side; at its mouth it opens out to about ¾ mile with low flat ground, covered with a thin layer of hard snow.

After passing through the gateway the valley opens out on either side, the breadth being about 1 mile. There are hills on each side of the valley varying in height from one to two thousand feet, and in the middle a flat plane.

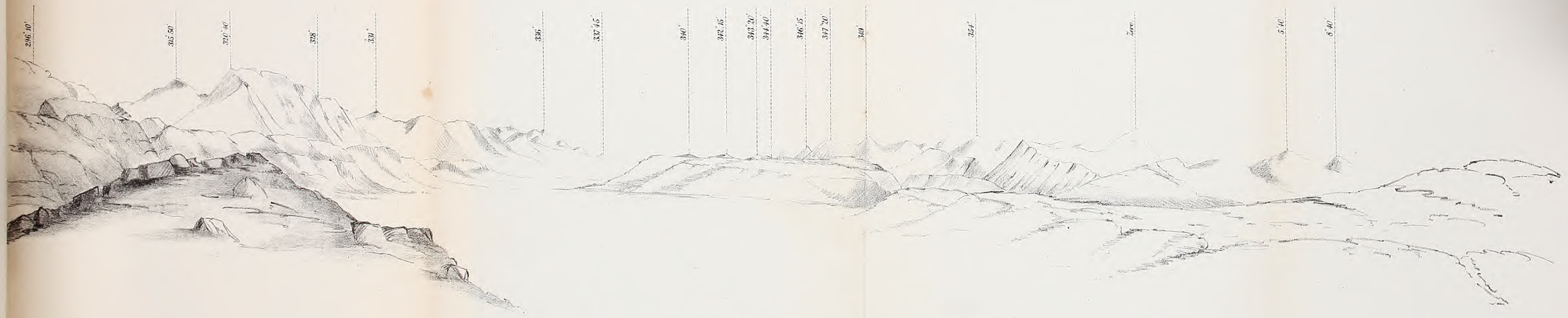
We put up a snowy owl and Capt. Feilden and Fred went in chase, but each time they got within about 80 yards of it it ascended higher up the mountain; we therefore christened it "Excelsior."

Having reached the head of the first basin, we encamped at 11·45, and I took an observation for Latitude. Capt. Feilden shot a ptarmigan. To day, for the first time, we drank some water from icicles melting on the cliff. The sun came out, and it turned into a beautiful day.

Dangerfield Lith 22 Bedford St Covent Garden

WESTWARD HO! VALLEY.

London School of Economics

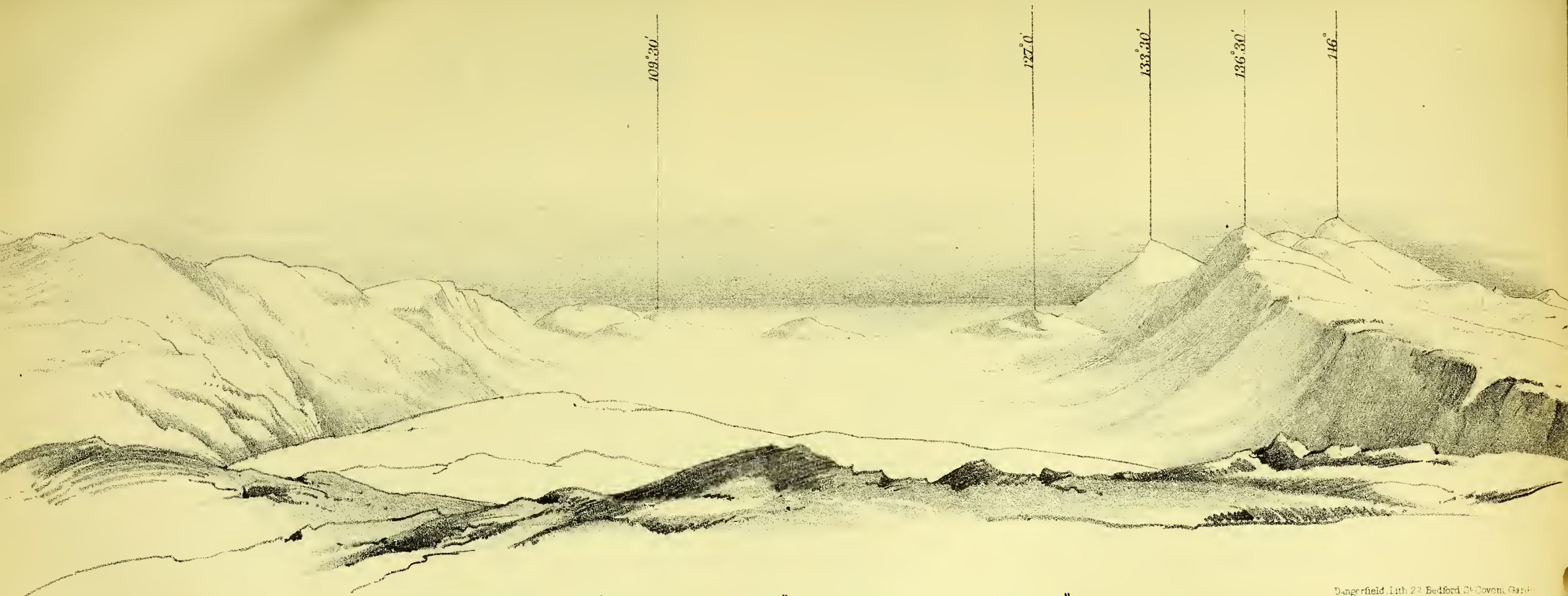


View of "Westward Ho!" Valley from Camp.

Langerfield Lith. 79, Bedford St. Covent Garden.

Dangerfield Lith 22 bedford St Covent Garden

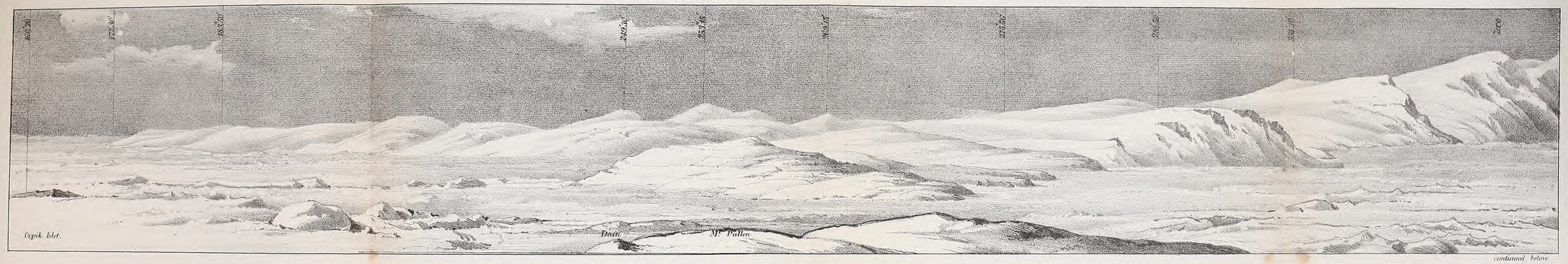
"CHEOPS" FROM "ALTERNATIVE HILL".



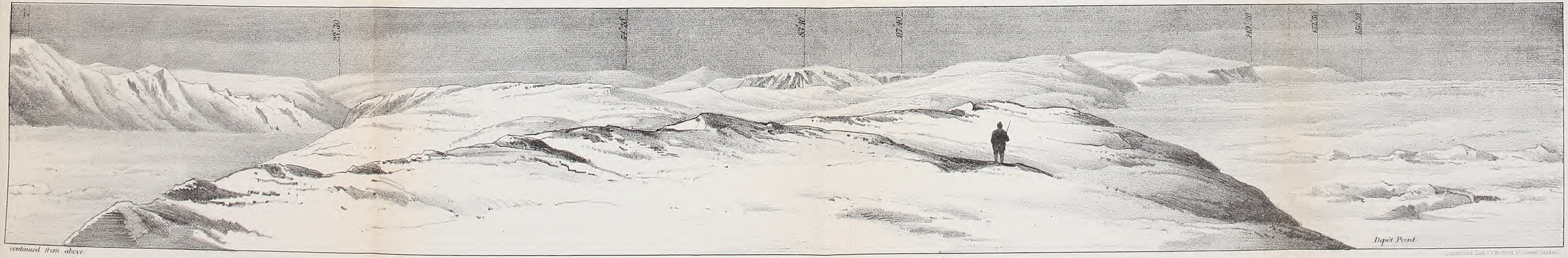
"JAMES ROSS" BAY FROM "ALTERNATIVE HILL"

Dangerfield Lith 22 Bedford St Covent Garden

2 6 MAR 1962



continued below.



continued from above.

Dangerfield Lith 22 Bedford St Covent Garden.

Travelled, 7 miles. Air + 12°
Hours marching, $6\frac{1}{4}$. Calm f.
Lunch, 2.
Mer. Alt., May 15th, 52° 25′ 40″.
I.E. − 1′.

May 15th—16th.

Struck the tent and started at 1 A.M. Very thick, can see nothing, and it is very trying to one's eyes. Fred showed me his leg last night, I think he must have bruised it; it is of a blueish colour, with red patches here and there. I bound it up with a bandage. Having done about 1 mile in $2\frac{1}{2}$ hours, the snow being very deep, and the fog being too thick to see anything before us, we encamped in the hope of the sun getting strong enough soon to clear some of it away; we imagined we were going down hill, but where, goodness knows.

May 16th.

The mist has all cleared away, and it is a glorious day. I must say I prefer day travelling—it is so much more cheerful and bright—instead of plodding along in the dull night, and going to roost just when the sun appears in his strength. Our valley, which we have named for the time "Westward-Ho!" lies before us, the hill tops on either side in the distance showing out against the snow, with the rugged outline of the mountains nearer to us, make as pretty a picture as a desolate, barren land is capable of doing.

We started at 1 P.M. The snow was very soft and deep. The dogs would frequently give it up as a bad job, and turn round and look at us; and sometimes, when we came to a soft piece, it required our united efforts to move the sledge at all. It looks to us now as if the valley cuts right through the country, as we cannot see any termination to it, and the mountains on each side die away in the distance.

At four o'clock we had nearly reached the head of the second basin, and the snow becoming deeper, we decided to encamp, as more potential energy is requisite to advance the sledge for one day than it would require to explore the whole country for 20 miles round. A very cold westerly wind was blowing, and we could find no lee to get under, so pitched the tent to windward of a small cliff in the centre of the valley, from the top of which I took a round of angles with the theodolite. (See sketch.)

Travelled, 4 miles. Temp. in tent
Hours travelling, $5\frac{1}{2}$. + $18\frac{1}{2}$

May 17th.

Arranged our plans as follows:—Feilden and I, with Fred and the dogs to attempt to get up to the top of "Cheops," distant about 15 miles, but apparently an easy road up to the base of him; Mr. Mitchell and James Self to try for game. At 9 o'clock we left camp with our guns, compasses, telescope, &c., 10 fms. of white rope, and the sledge. We had taken particular notice of our route, which would lead us to a glacier, or snow slope, we were not quite certain which it was, and this went half way up the mountain. For the first four miles the travelling was very fair, as we occasionally got a hardish piece of snow; but after that it became worse and worse, and was all soft. We crossed a broad ravine, which is the outlet for the water from this part of the valley to the sea, passing through James Ross Bay. Mounting the hill on the further side of the ravine was anything but pleasant work, for the place was covered with large sharp-cornered stones with snow over them, so one could only walk on blindly, and take what came first without picking the way. At length we turned the corner where we expected to find the snow slope; the snow slope was there certainly, but between it and ourselves there was a deep ravine quite impracticable to pass, the sides being nearly perpendicular. We then walked up the hill on our right, which we called "Alternative Hill;" it is 1,825 feet above the sea level, and looks down upon James Ross Bay. Made a sketch and took round of angles.

Finding "Cheops" out of the question, we decided to try and reach the glacier, or snow slope, which completely blocks up Westward Ho! Valley, and was about 4 miles distant; but before we had got one mile we were completely done up, sinking in the snow, which was of a soft powdery nature, up to our hips. I have never yet tried the treadmill, but I don't think it could be worse than the travelling at this place; we found it perfectly impossible to get along for more than a few yards at a time without stopping to take breath. The dogs could not get through it by their usual mode of progression, but would make a series of bounds like so many frogs, and then stop; the empty sledge would sink clean under the surface of the snow.

When within about three miles of the glacier, we saw a musk ox track and thought we saw the animal itself, so went in chase, but found the track led back to the eastward. The musk ox seems to have gone on until he could go no further, so turned back, for we could see by the tracks that he must have been half buried in snow. We were too much done up to go further, and in spite of our desire to reach the glacier, we were obliged to give it up. Before returning, we had a good look at the glacier, or snow slope, through a telescope; we could see no signs of a crevasse, and could not make out that it was ice; in fact, it looked more like an immense snow slope, but for the straight wall at its edge which must have been 50 feet high.

Got back to camp at 10 P.M. very tired and wet. During our absence the sportsmen have got one hare.

Hours travelling, 13.
Miles travelled, 25.

May 18*th.*

To-day we devoted to shooting, all setting out in different directions at noon. At 4 P.M. we met at the tent for luncheon, three hares, the only ones seen, were shot. At 5 P.M. left the tent again, returned at 9 P.M.; nothing whatever having been seen. It was a very hot day, the snow on the rocks melting rapidly.

Mer. Alt., 53° 52′ 20″
I.E. – 55″.
Sights for longitude.
Time, 3h. 15m. 31s. Alt., 46° 51′ 10″
I.E. – 55″.

May 19*th.*

Feilden, Mitchell, and Fred went off with their guns again to-day, and Jas. Self and I climbed to the top of a hill on the southern side of the valley, from which I thought I should have been able to see Mount Pullen, or some other hill I knew, wishing to take a round of angles with the theodolite. After a stiff and rocky climb, I was rather disappointed to find, upon reaching the top, that there was another hill rather higher than the one we were on at the back, and a deep ravine separating the two, the sides of which were very precipitious. I took what angles I could get, and luckily got a shot at the sun; called this "Theodolite Hill;" it is about 2,000 feet above the sea level, and 1,550 above our camp. Got back to camp after an absence of 6½ hours, and after an hour's rest and some luncheon we packed up and moved the camp to the mouth of the ravine at the entrance of the valley. By keeping to our old tracks we did the 6 miles in 3½ hours. The sportsmen saw nothing this morning but a snowy owl, he was very wild, and would not allow them to get anywhere near him. Mitchell took a photograph of the glacier.

Temp. air + 19°

Temp. tent + 50°

Miles travelled, 6.
Hours travelling, 3½.

May 20*th.*

Temp. air + 27°
N. 3 b.c.

2.45. Left camp. There seems to be a strong breeze blowing up in the hills, but we do not feel it in the valley. The land is bared considerably since we passed this way before. A great deal of hard, dirty-looking-snow covered our track in many places. At 5.20, stopped for lunch. The snow is much harder than it was upon our outward journey. Kept to the land the whole way to the depôt, where we found a note from Wootton. Took to the ice at the depôt, and had splendid travelling to Hare Ravine, where we pitched at 10.15. We brought on our three days' provisions from Depôt Point. The southern sides of all the floe bergs are fringed with icicles, giving them a very picturesque appearance. I find that moccasins get so wet now that the stitches all go, so I have taken to canvas boots.

Temp. + 27°
N. 3 o.

Travelled, 12 miles.
Hours travelling, 6.
„ for lunch, &c., 1½.

Sunday, May 21*st.*

Temp. air + 30°
„ tent + 50°
calm o. s.

At noon we all set off in different directions to try and get a hare or two, as we saw so many here before, but at four o'clock, when we met at the tent for luncheon, we had only seen one snow bunting among the whole of us. The place was covered with hare and musk ox tracks, but not one could we see. A very close day, even walking slowly along one gets quite hot. It was too thick weather to get any angles.

May 22nd.

Fred shot a ptarmigan with a bullet, but it was not more than about 12 paces off; onsequently, little or nothing of the bird was left. Packed the sledge, and moved the amp round the bay, past the Black Cliffs, and pitched about four miles from them, at he entrance to what afterwards proved to be a bay. We discovered a small islet about ½ miles from our present encampment, which we called Oopik Island, on account of the umerous traces of the owl which were found upon it. At 4.30, having had some uncheon, Feilden, Fred, and I set off with the dogs to explore the ravine. Crossing a eck of land to get into it, we came upon a fine bay running to the westward for about ¾ miles, and its breadth was about 1 mile; steep cliffs on its southern shore, which we stimated at 800 feet high; while upon its northern shore was a series of raised beaches, overed with shells. At the head of the bay there is a ravine, or, perhaps, it would be etter to call it a watercourse, for such it is, and is about 1 mile in breadth, in some aces more; hills on either side of it, ranging from about 300 to 1000 feet high; it urns to the southward in a semicircular manner, and about 4 miles up, it narrows into a mall ravine, leading up into the hills. We went as far as this point, and found some very nteresting mud beds, which delighted Captain Feilden very much, especially as we ound some shells, &c., in them. Got back to camp, feeling very cold and hungry, at 1.30 P.M.

Temp. air + 31° calm c. s.

Temp. air + 21

During our absence Mr. Mitchell, who is most indefatigable in his endeavours to rocure game, was away with his gun, but did not see a living animal or bird of any escription.

Travelled, 18 miles.
Hours travelling, 10.
,, lunch, &c., 2½.

May 23rd.

Took the theodolite to the top of the hill, under which we are encamped, and got a ound of angles; there was no sun to be seen.

Temp. air + 24° N.E. 2 o. c. s.

As soon as I returned we struck the tent and started at 2.45 p.m. for the snow uts in Dumbbell Bay. The snow on the southern side of Black Cliffs Bay was much eeper than it was on the opposite side, and the travelling was rather bad in onsequence. Put in to Simmons' Island, where I took a round of theodolite angles om the small cairn on the top, while lunch was being prepared. At 8.30. started f again, and had good travelling the whole way to the Snow Hut, which we reached 11.30 P.M., and pitched the tent.

Travelled, 13 miles.
Hours travelling, 6¾.
,, for lunch, &c., 2.

May 24th.

Dug out the tents and gear left here in the autumn. Pitched the tent and hung p the bags inside. We leave altogether one 5-man tent, 4 sleeping bags, waterproof, anvas floor-cloth, cooking apparatus, 3 pannikins, shovel and pickaxe, and 4 rations omplete.

Left snow huts at 2.15, and reached the ship at 5.45 P.M.

Travelled, 8 miles.
Hours travelling, 3½.
,, lunch, &c., nil.

This trip added considerably to our information of the geological structure of the ountry, and especially deserving of notice are mud-beds of great thickness, showing ections of 100 to 150 feet, containing shells similar to those now living in the eighouring sea. These mud-beds are extensively developed in many of the valleys we ntered.

Captain Feilden, who was of the greatest assistance to us in working the sledge, as, through his unceasing energy and exertions, enabled to bring back to the ship a onsiderable collection of specimens, representing the rock formations of the district we isited, and he expressed himself to me as well satisfied with the results of our journey his special branch.

I have the honor to be, Sir,
Your obedient servant,
G. LE. C. EGERTON, *Sub-Lieutenant.*

To Captain Nares, R.N., F.R.S.,
Commanding Arctic Expedition, 1875-6.

Weights at starting.

Constant Weights.	lbs.	oz.
Tent	36	0
Sledge	39	0
Backs and crosspiece	8	4
Poles	23	0
Coverlet	16	8
Snow robe	14	8
Sail	7	8
Floor cloth	10	0
Trough	6	0
Bottom	2	0
Pickaxe	7	8
Shovel	6	0
Store bag	17	0
Cooking apparatus	26	0
Medical stores	10	0
2 Rifles	15	0
2 Guns	14	0
Ammunition	15	0
Lunch bag, pannikins, &c.	10	0
5 Sleeping bags	41	0
5 Haversacks	50	0
5 Duffle jumpers	25	0
Sextant	12	0
Theodolite and Stand	15	0
Photographic Gear	26	0
100 fms. sounding line	21	8
2 Geological hammers	3	0
Total	476	12

Provisions.	lbs.	oz.
Pemmican	28	0
Preserved meat	42	0
Bacon	26	0
Biscuit	60	0
Potatoes	8	12
Rum	8	12
Chocolate	4	6
Tea	2	3
Sugar	13	2
Spirits of wine	35	0
Tobacco	2	0
Salt	1	1½
Pepper	0	3½
Onion powder	0	8¾
Curry paste	0	8¾
Lime juice	4	6
Total	236	15½

	lbs.	oz.
Provisions for 6 dogs, preserved meat	156	0

Total.	lbs.	oz.
Constant weights	476	12
Provisions	236	15½
Dogs ditto	156	0
	869	11

	lbs.	oz.
Weight per dog	144	15

W. Malley, A.B.
J. Hodges, A.B.

H.M.S. "Alert," at Floeberg Beach.
25*th May*, 1876.

Sir,

With the men named in the margin you will proceed to the neighbourhood of the Black Cape, and from there proceed out on the ice in Robeson Channel, to such a distance from land as you consider safe at this late period of the year, and there obtain serial temperature observations, and if possible current observations at different depths of water at different periods of the tide.

After this duty is completed, you are to endeavour to establish your tent, with cooking gear, equipment, and about 50 complete rations of provisions, but at least that quantity of groceries and fuel, at Cape Union, in an accessible position from both the beach and the land inshore.

On your return you are to convey any provisions that may be left unused at Cape Rawson to the ship.

G. S. NARES, *Captain, R.N.*
Commanding Arctic Expedition.

To
Sub-Lieutenant George Le C. Egerton, H.M.S. "Alert."

Wm. Malley, A.B.
Jno. Hodges, A.B.

Sir,

In compliance with your letter of May 25th, I have the honour to inform you that I left H.M.S. "Alert" on May 27th, with the two men named in the margin, and accompanied by Dr. Moss. Finding the weights would be too much to drag, I returned to the ship, after obtaining the soundings, and then proceeded to Cape Union to carry out the remainder of your orders. The following are the details of my journey :—

May 27th.

11.30 A.M. Left the ship with a 5-man sledge, tent, robes, bags, &c., 4 days' provisions, and gear necessary for obtaining soundings, temperatures, and current observations.

Owing to the late fall of snow, we found we had just as much weight upon the sledge as we could comfortably drag, the weight per man being 95½ lbs.

At 1.30 P.M. we got to Cape Rawson, and, having rounded the nip there by 2.30, pitched the tent for lunch. At 4.30 we were under way, and had heavy travelling to the Black Cape, which we rounded at 9.30 P.M., and pitched the tent close to the sore hummocks, where the road had been cut through them for the Greenland parties.

Travelled, 6 miles.
Hours travelling, 8½.
Lunch, 2 hours.

Temp. air + 22°
Wind N.W 1—3
Weather o. s.

May 28th.

It has been snowing all night, and is still doing so, and it is foggy as well.

Leaving the tent pitched, we started out at 11.30, taking ice chisels, pickaxe, and shovel with us, in search of a convenient place for making a hole through the ice; this we found, after crossing the first floe. It was a small floe of this season's ice, with only the lately fallen snow upon it.

Commenced work by digging a hole 4 feet in diameter at the top, working round the edges with a pickaxe, and thus cutting the centre away. The ice was in a soft, sodden state, water began to percolate through it when we had cut about 2 feet down. We found it difficult to cut, as it was too soft to chip, and the pickaxe would stick in it each blow that was given. By 3 o'clock we had got down 3 feet; so, leaving all the gear, we returned to the tent for lunch, where I had sent the cook on about an hour before.

Dr. Moss, who had been away with his gun all the morning, returned, having shot a hare.

At 4.30 returned to work, and found our hole had nearly 2 feet of water in it; bailed it out with the shovel, and continued to dig away again; after a short time, much before we expected it, up came a rush of water, so we cut the remainder away with ice-chisels. The hole was completed at 6.15 P.M. The position of the hole is, Black Cape, N.W. by N. ¾ mile, the nearest shore being ½ a mile from it. Sent Malley and Hodges back for the current gear, &c., while Dr. Moss and I sounded. The following are the results of the observations.—

Depth of water, 32 fms.
Thickness of ice, 4 ft. 1½in.

TEMPERATURES.

Temp. air + 22°.

Thermometer	Depth below Surface.	Set at Max.	Set at Min.	Showed Max.	Showed Min.
No. 7. Casella	5 fms.	29°·5	29°·2	29	29°·2
No. 8. ,,	10 ,,	22·8	23·8	28·3	23·8
No. 6. ,,	20 ,,	22·2	21·2	29	21·2
No. 128. (Inverting)	30 ,,	27°		29°·4	
No. 8.	2 ,,	24	25	28·5	29·1

Tide turned at 7.45; previous to that time the current was running to the northward, as far down as we could see. I tried Moore's Current Rate Apparatus, but the cylinder becoming full of water, the machinery would not work.

Saw a considerable number of various coloured shrimps and some jelly fish, but could not catch any. I also had a fishing line down, but never got a bite.

I found it uncommonly cold work dabbling about in the water, so, having done all we could do, we returned to the tent at 9.10 P.M. Our game laws permit the sportsman who shoots any hare or other game to have the head, liver, and heart for his own use, the remainder goes to the sick or for the general use of the ship; so this evening we

had for dinner "Pemmican a la lièvre perquisite," which was a great improvement on the pemmican by itself.

May 29th.

A good deal of wind last night, which blew clean through the tent; and having got very wet yesterday, we passed rather an uncomfortable night. To-day we return to the ship, taking all the gear we shall not want again with us, and leaving the tent pitched. Left the tent at 10 A.M., dug out the snow hut on the northern side of the Black Cape, in which I found a case, containing 120 rations of biscuit and chocolate, and another 30 rations of chocolate. Leaving 50 rations of biscuits and chocolate, I brought the remainder on board. As we already had as much as we could drag, I could not bring back any of the Cape Rawson Depôt. Got on board at 4.30.

May 30th.

Wm. Malley, A.B.
Wm. Gore, Stoker.
Geo. Cranstone, A.B.

Left the ship at 9.45 P.M. with the three men named in the margin, drawing a 5-man sledge, and taking a tent and gear to leave at Cape Union; also 50 rations and four days' provisions for our own use. Hodges was unfit to leave the ship. From Cape Rawson we took on 56 lbs. pemmican, 16 lbs. stearine.

At 1 A.M. stopped for lunch, and started at 3 A.M. From the snow hut we took on the 50 rations of biscuit and chocolate. I found a 32-lb. tin of pemmican there, which I left to pick up upon our return to the ship. Pitched the tent we brought with us on the north side of the Black Cape, rounded the Cape, and arrived at our old encampment at 5 A.M., where I remained for the night.

Travelled, 6 miles.
Hours on the march, $5\frac{1}{4}$.

Fog.
Wind N.W. 1.

I can hardly see, my eyes are so bad from snow blindness, though I wear spectacles continually.

May 31st.

Calm b. c. s.

Under way at 6 P.M., leaving coverlet, knapsacks, and all gear we did not want.

About 8 o'clock I was much astonished to see a tent pitched about half a mile further on. I gave a loud "who-whoop," and presently out came two or three men who proved to be Mr. Conybeare and party from the "Discovery," which ship they had left ten days ago. One of his crew was down with scurvy and could hardly get along. 10 P.M. Stopped for lunch. Up to this, the travelling to-day has been very good; hard snow, with only a very little soft snow upon it. I don't think there is anything that tries one's patience more than the 5-man cooking apparatus with rum for fuel. It took 1 hour and 40 minutes to boil the water to-day. At 3.30 we had reached Cape Union, or rather the ravine to the north of it, where I was to pitch the tent.

The whole place is so exposed that I could not pick out a position where there would be the slighest shelter from any wind which might blow, so pitched the tent upon a ridge on the southern side of the ravine, where it would, at any rate, be free from water, and where I thought it could easily be discovered by travellers coming either from the north or south. It is about 40 feet above the level of the sea, and half a mile from the shore hummocks.

It has come on to blow hard from the S.E., and a heavy snowstorm. We brought no coverlet, and left our duffle jumpers at the Black Cape, so we are rather miserable. To-day is the glorious 1st of June. I think the weather we have here would throw a damper on old Howe himself.

Travelled, 6 miles.
Hours on the march, 7.

June 1st.

During the night it came on to blow very hard from the N.W. I thought the tent would have been down about our heads several times. None of us got much sleep, for besides the wind, we were sleeping on rather an uncomfortable bed, being on slates, most of the corners and edges of which were sticking up. By 4 o'clock we were under way securing the tent, &c., and started at 4.30. The wind was right in our teeth, blowing with a force of from 5 to 8.

It is perfectly marvellous the alteration in the travelling since yesterday, caused by the combined efforts of wind and snow. All the snow seems to have blown off the hills down to the hummocks. Where we walked along with the greatest ease yesterday is now soft, sticky snow *above* our knees; in places we had to wade through the snow ourselves, and then "One, two, three, haul!" at the sledge, which was completely buried, only the cooking apparatus and a portion of the trough showing. We only had the cooking apparatus and our sleeping bags on the sledge. At one place we could hardly move the sledge at all, so tried to carry it, but this we found we could not manage. When about three miles from the Black Cape, Gore had to fall out; he could only just toddle along, and was continually falling down. When we got to the Black Cape we thought we should be at the tent in a few minutes more, but we did not get there for 2 hours and 10 minutes, a newly-formed drift 15 feet deep, and very soft snow, taking us the greater part of that time to pass. At 12.15 we reached the tent, very tired, cold, wet, and hungry.

The snow as it fell melted upon our clothes, consequently we got very wet.

Travelled, 6 miles.
Hours on the march, $7\frac{3}{4}$.
Lunch, &c., nil.

June 2nd.

Started at 2 P.M., taking tent and everything with us. Travelling as bad or worse than yesterday. Still snowing hard. Not quite as much wind as yesterday, but the extra depth of snow makes up for it. Took on the 32 lbs. of pemmican from the snow hut.

In one place we took to a bare patch of land, and found dragging the sledge over it not worse than over the snow, and the walking very much preferable. The sledge sinks until the body of it rests upon the snow, the runners do not take the weight at all; consequently, a large mass of snow collects in front of the sledge, which entirely stops further progress until the sledge is cleared, the quickest means of doing so being to lift the sledge bodily over the heap. It took us $4\frac{1}{4}$ hours getting from the tent to the Half-way Cliff, where we pitched the tent for lunch. Under way again at 7.45. At Cape Rawson we had the remains of the depot to carry round, viz.:—Pemmican, 2 56-lb. tins, 1 28-lb. and 1 32-lb. tins; bacon, 2 40-lb. and 1 20-lb. tins; and two cases containing groceries weighing about 60 lbs. each. At 2.45 we had carried all round except the two cases, which I have left until to-morrow. Made a good fire with the old cases, and tried to dry some of our clothes, which were all soaking.

Travelled, 4 miles.
Travelling and working, $11\frac{1}{4}$ hours.

June 3rd.

During the night it was more like being under a shower bath than a tent, the snow was falling very fast, thawing on the tent, and coming through in showers. We are all very glad that we shall get on board to-day, for all our limbs are aching, and our clothes hanging about us like wet sheets.

At 2.30 we had brought the two cases round, and started for the ship. I was unable to bring any of the depôt back with me, except one case, as we had as much as we could drag over the soft snow. Got on board at 6.30 P.M.

Before concluding, I wish to mention that the two men, Wm. Malley, A.B., Geo. Cranstone, A.B., worked very hard indeed during the trip, which, though not a long one, was somewhat laborious owing to the nature of the road.

I have the honour to be,
Sir,
Your obedient servant,
G. LE C. EGERTON,
Sub-Lt.

To
Captain Nares, R.N., F.R.S.,
Commanding Arctic Expedition, 1875-6.

Weights at starting.

First Trip.

	lbs.	oz.
5-man tent	24	4
Poles	21	8
Sledge	39	0
Coverlet.. .. .. .. / Lower robe	31	0
Sail	7	8
Sledge bottom	2	4
Pickaxe and shovel	13	8
4 sleeping bags	32	8
Cooking apparatus	18	0
Rifle and ammunition	12	0
4 haversacks	33	0
1 small bed	11	8
Current apparatus	10	0
Reversible thermometer apparatus	14	0
5 Thermometers	5	0
Large bed	40	0
2 Ice chisels	24	0
	338	0
4 days' provisions	44	0
4 |	382	0
Weight per man ..	95	8

Second Trip.

	lbs.	oz
5-man tent	24	4
Poles	21	8
Sledge	39	0
Sail	7	8
Waterproof	9	8
Cooking apparatus	18	0
Pickaxe and shovel	13	8
Pannikins, &c.	3	4
	136	8
50 Rations complete	150	0
4 Days' provisions for use ..	44	0
4 |	330	8
Weight per man ..	82	10

Sir,

I have the honour to forward for your information the account of my proceedings while detached from the ship with a party of eleven men, between the 15th and 23rd of July, for the purpose of bringing the boats, which were advanced to the northward last autumn, on board.

July 15th.

Adam Ayles, 2nd C. P. O. Capt
Jno. Simmons., 2nd C. P. O.
Geo. Cranstone, A.B.
Wm. Malley, A.B.
Jas. Self, A.B.
Wm. Gore, Stoker.
James Thornback, A.B.
J. Cane, Armourer.
Rob. Hitchcock. A.B.
Jno. Hodges, A.B.
Danl. Girard, A.B.

Left the ship at 8 A.M. with a crew of eleven men, named in the margin, manning an eight-man and satellite sledges, provisioned for 8 days, and taking a whale boat to leave at the North Ravine.

Travelled along the icefoot to within a quarter of a mile of the ravine, when I was able to launch the whaler, place the eight-man sledge in it, and warp it up to the place which was most convenient for crossing the water. Moored the boat in the centre of the stream by means of a line secured to ice anchors on either shore.

Having crossed the ravine, we had to drag the sledges over the land for about half a mile, when we got an ice foot to travel on. I shot two geese in the lake just to the northward of the ravine, and saw a trout which I also shot, and we afterwards had it cooked for lunch.

At 1 o'clock we halted for lunch, and at 2 were under way again. Travelled along shore on the floes inside the hummocks to within a mile of Mushroom Point, when we were obliged to take to the land again, there being a stream of water between the land and the floe which was too broad to cross. In several places we had to take to the land for short distances, owing to the very deep slush on the ice-foot. Got to Mushroom Point at 5 P.M., where I camped for the night. All our trowsers and foot gear were wet through, but every man has a complete change of clothing, so we have dry things to sleep in. Had a very good dinner off the two geese, mixed with pemmican.

Travelled, 6 miles.
Hours on the march, 8.
Halt for lunch, 1 hour.

Sunday, July 16th.

Called the cook at 2.15 A.M. Under way at 5. Crossed Ravine Bay on the floe, which was very much cut up with lanes and pools of water, but not wishing to get the men wet more than I could help, we avoided the water as much as possible; to do this we had to make a very circuitous track, sometimes being stopped by a lane of water, and having to retrace our steps for a quarter of a mile. At 7.15 we arrived at the tent in Dumb-bell Bay, which we had orders to remove for our own use, having one eight-man tent which we brought on from Mushroom Point. Found the tent (which is a five-man tent) was occupied by Lieut. Parr and Capt. Feilden, who were not at home, so having orders to give the men a holiday to-day, I pitched the eight-man tent, and sent the men away to amuse themselves the best way they could, giving one the gun, and another the rifle, while I set off with the provisions for the shooting party at the lakes, about four miles off. I was fortunate enough to arrive there just as their breakfast was ready, which consisted of the livers, hearts, and gizzards of 13 geese, which they shot yesterday, fried with bacon, and uncommonly good they were, being cooked to a turn by Sub-Lt. Conybeare, whose duty it was to perform the functions of that office for the day. Before returning to our tent Capt. Markham very kindly gave me four geese for our party, which we were very glad to get, especially as our sportsmen had not seen a thing; and, indeed, the quantity of game about the country is so small that Capt. Feilden and Lieut. Parr, whom I found in the tent upon my return, had hardly shot anything, and were very glad to get some pemmican for their dinner, as they only had preserved meat with them. After dinner they packed up their gear and started for Mushroom Point. Most of my men had had a good walk over the country, and seemed to have enjoyed it. The ice in Dumb-bell Bay is not so much cut up with pools of water as Ravine Bay, but all round its edges there is a lane of water varying from about 10 to 40 feet broad, access on to the floe being only to be got at one or two places.

July 17th.

Called cook at 5.15, under way at 7.30. Divided the weights as most convenient between the two sledges. Pitched both tents at Harley Spit, and then went on to the boats. Dug them out and advanced the large ice boat about half way to Harley Spit, the greater part of the remainder of the way I hope to be able to track the boat along at high tide. We then returned for the small boat which we brought about half a mile back with us, when Jas. Self who I had sent to take a saw to Capt. Markham's party returned with a note for me to the effect that they had shot two musk ox, and wanted a boat to bring them back in. So I sent the men back to the tent and met the shooting party, and made arrangements to go for the musk ox to-morrow. During lunch to-day which we had at the boats, I came upon a plot of ground covered with sorrel so I gave the men half an hour to graze. Notwithstanding that the greater part of the land is bare of snow, I have become quite snow blind, eyes painful and inflamed; the best remedy I find is the zinc lotion, a small bottle of which I carry about with me to wash my eyes continually.

Miles travelled, 10.
Hours travelling, 8.

July 18th.

Found it very cold last night; stockings &c., which were hung out to dry were frozen hard. At 8 o'clock, I sent Simmons, Self, Cane, Hodges, and Hitchcock to walk across to the Commander's tent and he is going to show them the way to the musk ox, which has to be carried about half a mile to the water. The rest of us took the small boat round the coast into another "Dumb-bell" bay, which was the nearest place for us to go for the beef. We had a very wet journey of it, the floes are tremendously cut up with water patches, which however, are only deep enough to float the boat when no one is in it, so we have to wade through the pools shoving the boat along, it was perfectly useless to attempt to keep dry, especially as there were numbers of holes and cracks; two men, Ayles and Cranstone, went clean into the water, and the rest had many close shaves of doing the same thing. At 2 o'clock, had lunch and started again at 3.15, did not get to the head of the bay, where we met the other party, until 6.30. Lit up the kettle and had some steaks; being too late to take the boat back to-night, we all walked across country to our tent, which we reached at 11 P.M., all very wet and very tired, but after getting into warm and dry clothing, and having a good dinner of musk ox steaks and

potatoes, we were all as happy as possible. The "fisherman's" boots which the men are wearing are very good for our usual travelling on the floes, but were very heavy walking over land, and several of the men have been rather chafed with them.

Travelled, 15 miles.
Hours travelling, 12½.
,, lunch, &c., 2½.

July 19th.

After a long sleep of about 10 hours last night we all felt very "fit" this morning and had a good breakfast on musk ox steaks, which were excellent, having no musky flavour whatever. We set off at 3 o'clock and walked over the land to the head of the bay, where we had left the boat and reached it at 5.

On the Eastern shore of the inner part of this bay, there were great quantities of drift wood, pieces of all sizes, varying from 15 feet in length to a foot, but apparently all of the same description, most of the pieces were lying on the surface, but some were slightly covered with soil, I found pieces 40 feet above the level of the water. One tree lying close above the water's edge, was about 15 feet long, and 12 inches in diameter at its thickest part. The shore was covered with shells to a height of 20 feet above the level of the water generally, but in places considerably higher. All the shells were of the same kind.

Instead of trying to track the boat along, we walked it over the floes the whole way, wading through the pools as we came to them, the water was about 3 feet deep in most of the pools and lanes, though in some places it was considerably more, and in some of the lanes the ice had entirely melted. When we came to these deep pools or lanes we made a bridge of the boat, or ferried over according to its breadth. Stopped for lunch on the N.E. point of the bay; while waiting for the kettle to boil I came upon a pile of rocks which looked like an old ruin about 40 feet above the level of the sea; upon examination, I found these rocks full of fossils, specimens of which I brought on board for the Naturalist; these rocks appear to have been deposited here by some means, as they are of a totally different nature to that of the surrounding strata. Being very cold and wet when we got to Boat Point, I stopped for three-quarters of an hour for tea, and before leaving, removed the groceries and left the pemmican. After a hard day's work, we got our load to Harley Spit at 4 A.M.

Travelled, 15 miles.
Hours travelling, 10¾.
,, lunch, &c., 2¼.

July 20th and 21st.

I gave the men a good long night's rest, as they were rather tired, and I could not do much before high water. We have gradually worked round into night travelling. At 7.30 P.M., I sent Simmons, Cane, Hodges, and Hitchcock, to take the musk ox to the ship on the "Satellite Sledge," taking their tent and gear with them as far as Mushroom Point, where I instructed them to leave it for our party to bring on. I should have mentioned that on the 18th, Capt. Markham, Lieut. May, and I shot 10 geese, which we brought round with us, and Capt. Markham called at our tent yesterday, leaving 7 more; so Simmons' party take 6 quarters of musk ox, and 17 geese with them to the ship. At 7.30 P.M., the remainder of our party, viz., 7 men and myself, went for the large boat, but had to wait for half an hour for the tide, and then we floated her the greater part of the way to Harley Spit and dragged her the rest. We found the boat travelled much easier on her keel than on the sledge, so we invariably march in that manner. A smart shower of rain coming on when we were at Harley Spit, I got the men under cover until it was over, when we again proceeded towards Mushroom Point, taking the large boat, pickaxe, shovel, oars, &c., and theodolite and stand, the latter I brought from the ship to get some rounds of angles, but during our absence it has been thick weather continually.

There being more water on the floes inshore, I chose a route well outside, and had very good travelling the whole way to Mushroom Point, which we reached at 4.30, having been delayed 1½ hour at the point between Dumb-bell and Ravine Bays for lunch. Returned to the tent at Harley Spit, which we reached at 6 o'clock.

Travelled, 5½ miles.
Hours travelling, 8½.
,, lunch, &c., 2.

July 21st and 22nd.

Under way at 7.20, taking tent, small boat, and all the gear, two hands pulling the sledge with provisions, tent and cooking apparatus upon it, the remainder bringing the boat, bags, haversacks and robes in it. A cold raw wind was blowing, and being as usual up to our knees in water, we found it far from pleasant. Arrived at Mushroom Point at 11.30, and started again at 1.20, taking the small boat, the same as this morning, with an eight-man tent, waterproof robes, and floor cloth in addition, these having been left at Mushroom Point by a former sledge party. The travelling on the southern side of the point not very good; I kept well out, outside the shore hummocks, as I should not have been able to drag the boat over the land, which I should have had to have done had I kept inside. At 2 o'clock, a heavy shower of rain came on followed by a snow storm, not wishing to get the men's upper garments wet, it being quite enough to have their lower ones in that condition, we got in to the land through a passage between the hummocks, and pitched the tent on a capital piece of ground, with a stream close at hand. I also pitched the spare tent for the cook.

Travelled, 3 miles.
Hours on the march, $4\frac{3}{4}$.
,, lunch, &c., 2.

July 22nd and 23rd.

My watch having stopped the other day while at Harley Spit, I borrowed Lieut. May's, but this morning I missed my own, and concluded that it must have dropped out of my pocket; so, taking Malley with me, I set off in search. I instructed Ayles to take the rest of the men back to Mushroom Point for the large boat, and then advance it as far as possible towards the ship. At 6 P.M. we all started, Malley and I following our track. At Harley Spit I found the watch lying on the ground, so we returned, and overtook the boat party at 10.30 P.M., when we halted for lunch. Under way at 12 o'clock, and travelled on the floes, keeping well out from the land; had very good travelling, but very wet and cold. When we got within a mile of the North Ravine we observed water outside the hummocks, the sight of which so pleased the men that they gave three cheers. We launched the boat at the North Ravine, and pulled to half a mile from the ship, where I hauled up the boat, and we returned to camp, re-crossing the ravine by the whale boat. Arrived at the tent at 3.30 A.M.

Travelled, $7\frac{1}{2}$ miles.
Hours travelling, 8.
,, lunch, &c., $1\frac{1}{2}$.

July 23rd.

Left camp at 2.30, taking with us tents, gear, &c., small boat and sledge; travelled from point to point on the floes, following our track of yesterday. From Shirley Spit, observed open water, about half a mile broad, extending as far as I could see to the southward. There was not sufficient water in the ravine to-day to float the boat with the gear in it, so we waded across, and arrived on board at 8 P.M.

Travelled, $4\frac{1}{2}$ miles.
Hours travelling, $5\frac{1}{2}$.
Lunch, &c., nil.

During my absence I have had every reason to be pleased with my sledge crews, all of whom have worked well and cheerfully.

I have the honor to be,
Sir,
Your obedient servant,
G. LE C. EGERTON,
Sub-Lieutenant.

Captain G. S. Nares.

LIEUTENANT WILLIAM H. MAY. ORDERS TO, 24TH APRIL. SLEDGE JOURNAL, 24TH TO 30TH APRIL. ORDERS TO, 4TH MAY. SLEDGE JOURNAL, 4TH TO 9TH MAY. SLEDGE JOURNAL, 25TH MAY TO 7TH JUNE. ORDERS TO, 8TH JUNE. SLEDGE JOURNAL, 8TH TO 14TH JUNE. ORDERS TO, 18TH JUNE. SLEDGE JOURNAL, 18TH TO 25TH JUNE.

H.M.S. "Alert," at Winter Quarters,
24th April, 1876.

Sir,

Taking command of H.M. Sledge "Clements Markham," you are to proceed to the neighbourhood of Lincoln Bay, either by the shore or over the land, as you think most advisable, returning, if possible, on the 30th instant.

The object of your journey is to endeavour to establish a practicable route between Lincoln Bay and our winter quarters, after the snow has melted, as free as possible from the impediments of ravines crossing the line of travel.

In changing the position of your encampment you are to accommodate your movements as far as possible to suit the convenience and wishes of Captain Feilden, who accompanies you.

G. S. NARES, *Captain,*
Commanding Arctic Expedition.

To Lieut. W. H. May.

H.M.S. "Alert."

Sir,

BlackFace(King), Sal (Queen), Ginger, Soresides, Topsy, Bos, Flo. Calm, b.c. Barometer 29·94. Temp. +3°.

In compliance with your letter of the 24th of April, I left the ship with the dog-sledge "Clements Markham," Frederick (Eskimo), and the seven dogs named in the margin, and was accompanied by Captain Feilden, R.A., Naturalist, and Mr. Wootton, Engineer. The following are the results of my journey.

Left the ship at 11.45 P.M., on the 24th April; we had to haul the sledge round Cape Rawson, after which we had good travelling up to the Black Cape, where we had to man-handle the sledge again; we found hauling the sledge up to the top of the hummocks was just as much as the four of us could manage. Stopped for lunch after getting over the hummocks, and started after lunch at 3.45 A.M. on the 25th; had very good travelling to the ravine just to the northward of Cape Union, where we camped at 8 A.M., making a short journey, as none of us had had any heavy exercise lately.

Up to this place I saw no ravines of any importance; the one by Cape Union, although having a very large discharge, appears to be fed by three steep water-courses. The coast travelled along is a series of headlands divided by ravines, which are full of raised beaches; hummocks being squeezed up all along the coast, but none so bad as those off Cape Rawson.

N.E., 1, b.c. Barometer 30. Temp.—17°

As Frederick has not much idea of cooking, the officers are taking it in turns, it being mine to-day; before finally getting into my bag I obtained a meridian altitude.

Hours travelling, $6\frac{3}{4}$.
,, lunch $1\frac{1}{2}$.
Distance travelled, 14 miles.

Meridian Altitude.
42° 00′ 00″.

Index Error.
On, 35′ 30″.
Off, 29′ 40″.

April 25th.

Calm b.c. Barometer 30. Temp.—7°.

A beautiful evening; so went out with Mr. Wootton, and got a round of angles with theodolite; on our return at 7 P.M., lighted up and had breakfast; starting at 10 P.M.; stopped for lunch at 1.30 A.M.

2 A.M. N.N.W., 1, b.c. Barometer 30·10. Temp.—6°.

The travelling up to this has been very heavy, on account of the steepness of the cliffs along the shore, which have hard snow on their slopes, and in places no hummocks to prevent your falling from 10 to 20 feet on to the ice, which is composed of very rough hummocks, and consequently worse to travel on than along the land. At one of these places, after making a gutter for one runner to fit in, and with the four of us assisting

3 A.M. Temp.—10.

he dogs, we could not get along without the risk of the sledge falling on to the floe height of about 15 feet, so unloaded and carried the gear over.

Starting after lunch, at 3 A.M., we passed Arthur's Seat after half an hour, and hen eased the sledge down a steep slope on to the ice; travelling on it for another two niles, we struck on to the icefoot, and from there had very fair travelling close up to he depôt in Lincoln Bay, where we camped at 8 A.M. 8 A.M. Calm, b.c. Barometer 30·10. Temp. +3°

The hummocks are pressed up on the shore to within one mile of the depôt, arying in height from 10 to 25 feet.

The land travelled along is nearly all precipitious, with steep talus; the line of coast has many points, gradually altering to the westward of south after passing Cape Jnion. South, 2·3, b.c. Temp. − 17°

The only ravine which we passed that seemed likely to lead to the northward, is ne about three miles north of the depôt.

Captain Feilden, R.A., was our cook to-day, and by the time we were in our bags vere very glad to get our supper.

Hours travelling, 8½.
,, lunch, 1½.
Distance travelled, 12 miles.

THEODOLITE.

Time 6.5 P.M. Altitude 12° 35′. Azimuth 294° 50′. Peak north of Union zero. Sun left of zero.

April 26th.

Roused the cook at 8.30 P.M., and got away at 11.30. As we intended exploring he ravine by the depôt, and should not use the dogs, I sent Frederick away to shoot. I walked to the depôt, joining Captain Feilden and Mr. Wootton on the lake. This lake which runs W.S.W., is about 2 miles long, and averages ¼ of a mile in breadth; the ice on t is of two descriptions; patches of this season's ice between the old ice; there being at least twenty times as much old as new; the old ice was much cut about, and very sharp, cuttings one's boots; the new perfectly smooth, and in some places you could have skated on it. At the end of the lake you walk for about a ¼ of a mile over a sandy mud bottom, on the surface of which were scattered many shells; we then got on to a second lake, much smaller and shallower, and which terminated in a gravelly beach; the shells here were even more abundant than before; the land rising slightly but evenly for some distance; Mr. Wootton from here returned to the camp. 10 P.M. Calm, b.c. Barometer 30·24. Temp. +5°.

Proceeding, we came to a place where the summer torrent had cut a passage through the hard slate rocks for a distance of a ¼ of a mile, with its sides as even as if done by human workmanship. After following this ravine in a W.S.W. direction for about 5 miles, which is a series of shallow lakes and patches of mud, it turns to the N.W. We walked on another 5 miles, reaching approximately an altitude of 800 feet; from this position the highest land (which bore N.N.W.) I think is the watershed seen from Mount Dean. The land on the north side of the ravine is highly precipitous.

As we had been walking for six hours, we deemed it wise to return, picking up a hare, which was shot close to our furthest point.

At the point where the ravine turns to the N.W. I observed two torrents ran in; a passage may be found across the land in rear of Cape Frederick VII, but the size of the torrents gave me the opinion that they were only local. But there is a larger ravine by which I think you could reach Wrangel Bay. We did not arrive back till 11 A.M., having been twelve hours walking without food, and consequently very tired; the last two miles we were constantly spelling, and with difficulty preventing ourselves from going to sleep. On our arrival at the camp, Mr. Wootton, with his usual forethought, had some tea all ready, which it is needless to say was most acceptable.

In places vegetation was abundant, but we observed no traces of musk ox; tracks of hares were very numerous, and in several places traces of ptarmigan. Noon. Calm, b.c. m. Barometer 30·12. Temp. +7°.

Obtained a meridian altitude before bagging.

Hours travelled, 12.
,, lunch, 0.
Distance travelled, 20 miles.

Meridian altitude, April 27th, artificial horizon. 43° 24′ 30″.

Index error. On, 34′ 10″. Off, 28′ 30″.

April 27th.

Calm, b.c.
Barometer 30·15.
Temp. +3°.

A beautiful fine day, so took a round of angles from a brow about 200 feet high. The accompanying sketch was kindly done by Captain Feilden at the time.

After breakfast started up a hill close to our encampment, with Captain Feilden, while Mr. Wootton went on three miles with the sledge, as I intended exploring the ravines on my return journey.

Examined a small ravine about 1½ miles to the northward of our last camp, but from what I could see, 1,000 feet above the level; it was no use following it up.

Proceeding along the coast line to the northward, we came to a large ravine mentioned before, being about 3 miles from the depôt, and it looked so favourable, that I determined to go back to the sledge for lunch and afterwards to follow it up for a short distance.

S.W., 3·4.

On arriving back at the sledge, which was just off the mouth of the ravine, we were glad to find that Mr. Wootton had lunch all ready for us, and as there was a S.W wind springing up, making it very cold after perspiring freely, we started away after ten minutes' halt with the sledge.

After proceeding up the ravine on a northerly course for about 3 miles, and the weather becoming thick, I was doubtful about going on, for if the ravine did not go on to the northward, I should not be back to the ship at the date fixed, so halted the sledge, whilst Captain Feilden and I went on 3 miles and ascended a hill 1,200 feet (by aneroid); unfortunately it was thick and misty, so could not see far, but thought at one time the ravine trended towards Cape Union; but it was too thick to make certain; however, I determined to follow the ravine up next day. By the time we got back to the sledge it was noon, so encamped, all very tired.

South, 1·2.
Barometer 29·90.
Temp. +10°.

Hours travelling, 12.
,, lunch, 10 minutes.
Distance travelled, 18 miles.

April 28th.

Encampment, Lincoln Bay.
Cape Brevoort; zero, sun left.
Time, 2 h. 38 m. 20 s. A.M.; altitude, 8° 55′; azimuth, 276° 10′. See sketch.

April 28th to 29th.

Calm, o.m.
Barometer 30·06.
Temp. zero.

Roused cook at 8.15 P.M., and breakfasted. Started away at midnight; travelling heavy on account of the soft snow; after two hours' travelling we reached the highest part of the ravine, but it was very misty, and consequently could see no distance.

At 3 A.M. lunched, which took us two hours, as we could not get the water to boil.

As luck would have it, the weather cleared after lunch, and we found ourselves close to Cape Union; so followed on ravine which leads behind it; there was a very steep descent into the mouth of the ravine, down which we eased the sledge; I found that a pick made a very good break, lashing the handle securely on to the lower part of the runner, and keeping the broad pad of it in the snow. We came out on the coast just to the north of Cape Union, and camped a few yards from our encampment on the 25th instant. After pitching the tent, Captain Feilden and I went up the headland on the north side of the ravine (thinking it was higher than Cape Union), taking the theodolite with us; we had a stiffish climb, as it is very steep; it was a beautiful morning, and I got a round of angles, the opposite shore being seen very distinctly. Arrived back at the tent by 11 A.M., and had supper.

Calm, b.c.
Barometer 30·42.
Temp. +7°.

Hours travelling, 9.
Travelled, 11 miles.
Hours at lunch, 2.

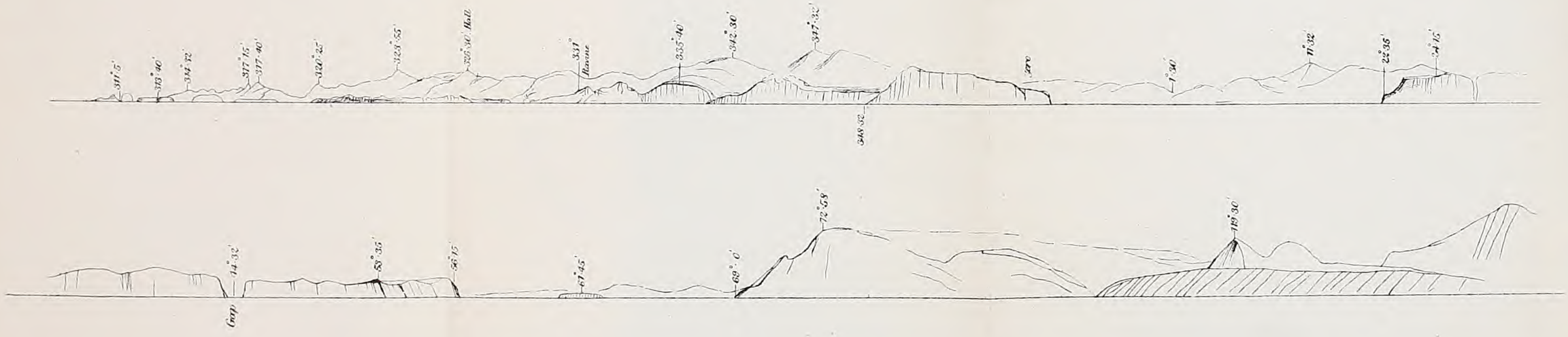
April 29th to 30th.

Calm, b.c.
Barometer 30·40.
Temp. +3°.

Started after breakfast at 9.45 P.M. Lunched at Black Cape. Brought on from there a 5-man sledge and gear, which had been left by Lieutenant Rawson.

Arrived on board at 5.15 A.M., when I reported myself to you. Travelling to-day much the same as we had on our outward journey.

Distance travelled, 14 miles.
Hours travelling, 6½.
,, lunch, 1¼.



Lowe, Field Bath 22 Bedford St, Covent Garden

C
B
T

S.

Sou
Bar
Ten

Calm
Baro
Tem

Calm
Baro
Tem

Calm
Baro
Tem

I believe that a passage may be found to Lincoln Bay during the latter part of the spring, by following the coast line as far as Cape Union, and then following the ravine that we travelled through, or else by going overland to the watershed seen from Mount Dean, which will lead you into the large ravine at the head of Lincoln Bay.

Weights.

	lbs.	ozs.
5-man tent	24	4
„ poles	21	8
„ sledge	39	0
„ back	8	4
Coverlet and lower robe	31	0
Sail	7	8
8-man trough	5	12
Pick and shovel	13	8
4 bags	32	0
4 duffles	20	0
4 knapsacks	32	0
Cooking apparatus	13	0
Store bag	17	0
Sledge bottom	2	4
Spare battens	3	7
Sextant	12	0
Theodolite	10	0
Rifle and gun	12	0
Ammunition	2	0
Medical box	3	13
Constant	310	4

Provisions.

	lbs.	ozs.
Pemmican	28	0
Biscuit	24	8
Bacon	10	8
Potatoes	3	8
Tea	0	14
Cocoa	1	12
Sugar	3	8
Fuel (spirits)	30	0
Rum	3	8
Pepper and salt	1	0
	107	2
4 days for 7 dogs	56	0
Provisions	163	2
Constant	310	4
	7)473	6
	67	10 per dog.

H.M.S. "Alert," at Floeberg Beach,
Lat. 82° 27′ N., Long. 61° 22′ W.,
4th May, 1876.

Sir,

Taking command of H.M. Sledge "Clements Markham," provisioned for an absence of ten days, you are to proceed to Lieut. Beaumont's Depôt on the Greenland Coast, and, after Mr. Egerton has given up the command of H.M. Sledge "Alert" to Dr. Coppinger, who is expected to arrive at the depôt on the 10th inst., you are to return to this ship with Mr. Egerton and the man who accompanied him.

On meeting Mr. Egerton you are to inform him that, instead of proceeding Polaris Bay, he is to wait at the Repulse Harbour Depôt for the arrival of Dr. Copping and to transfer the command of his sledge to that officer.

I wish you to return as soon as possible, without making forced marches; b should the weather be fine, a short time may be spent in exploring the overland rou between Repulse Harbour and Newman Bay.

G. S. NARES, *Captain R.N.*
Commanding Arctic Expedition.

To Lieut. May.

H.M.S. "Alert" (At Egedesminde).
30th September, 1876.

Black Face (King), Sal (Queen), Soresides, Ginger, Bruin, Topsy, Bos, Flo.

Sir,

In compliance with your letter of the 4th of May, I left the ship with the do sledge "Clements Markham," provisioned for 10 days, accompanied by James Self, A.I Frederick, Eskimo, and the eight dogs mentioned in the margin; the following are t results of my journey:—

May 4th to 5th.

Left the ship at 10.10 P.M. on the evening of the 4th, and after getting over tl difficulties of rounding Cape Rawson and Black Cape, struck off towards Crossing Harbo at Black Cape, where the road through the shore hummocks had previously been made lunched at 1.10 A.M.; after getting through the first 1½ miles of hummocks and sma floes, the sledge tracks were rather confusing, as the sledges do not appear to hav followed the same track, but we found a very good road and went along at a very fa pace. Finishing our lunch by 2.30 A.M., another hour's travelling brought us on to large floe, on which we travelled for 2½ hours; this floe cannot be less than 7 miles across after getting over another 1½ miles of hummocks and small floes, I was looking out for suitable place to encamp, when I saw H.M. Sledge "Alert's" crew encamped anothe mile on, so we went on to them and pitched tent, arriving at 7.40 A.M.

Midnight, Bar. 29·90. Temp. −10°. Calm b.

We found the Alert's all awake, having only just finished their supper. Mr. Egerto to whom I gave your orders, turned out of his bag and came to the top of a hummoc where I had fixed the theodolite, and kindly sketched the surrounding land, which wa very cold work, as there was a southerly wind, force 4 to 5, and the temperature −10° I obtained sights for longitude and a round of angles to all the principal headlands an hills; the land to the north-eastward was slightly miraged, but the rest of the land wa very distinctly seen. We were called back to the tent by the cook, who had suppe ready, but I was surprised to find that the Alert's cook was doing our cooking Mr. Egerton joined me in my tent, and then I found why the Alert's cook had been s kind as to do our dirty work, for having given us our tea and pemmican, he helpe Mr. Egerton and himself, who made a very good meal, although they had not finishe their own more than an hour.

We were all bagged and ready for sleep at 10.30 A.M., but I stayed awake to get a meridian altitude.

8 A.M., Bar. 29·90. Temp. −10°. South, 3·4 b.c.

Bruin had so many fits to-day, that I let him go, as I thought he would probably return to the ship.

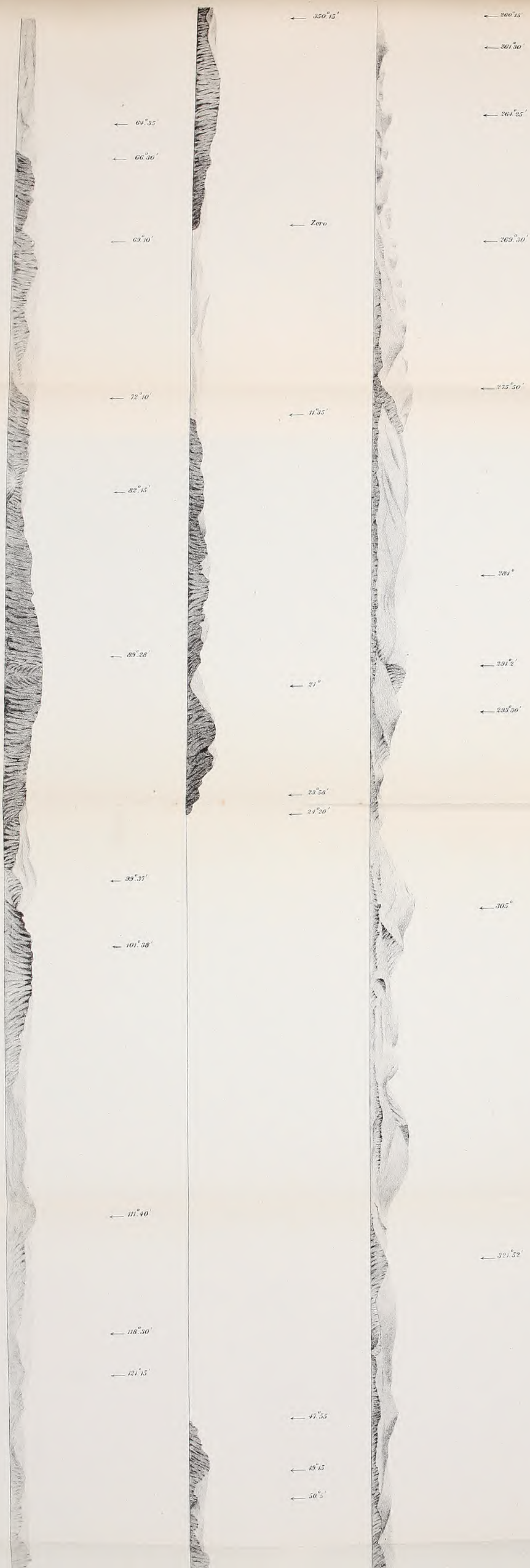
May 5th.

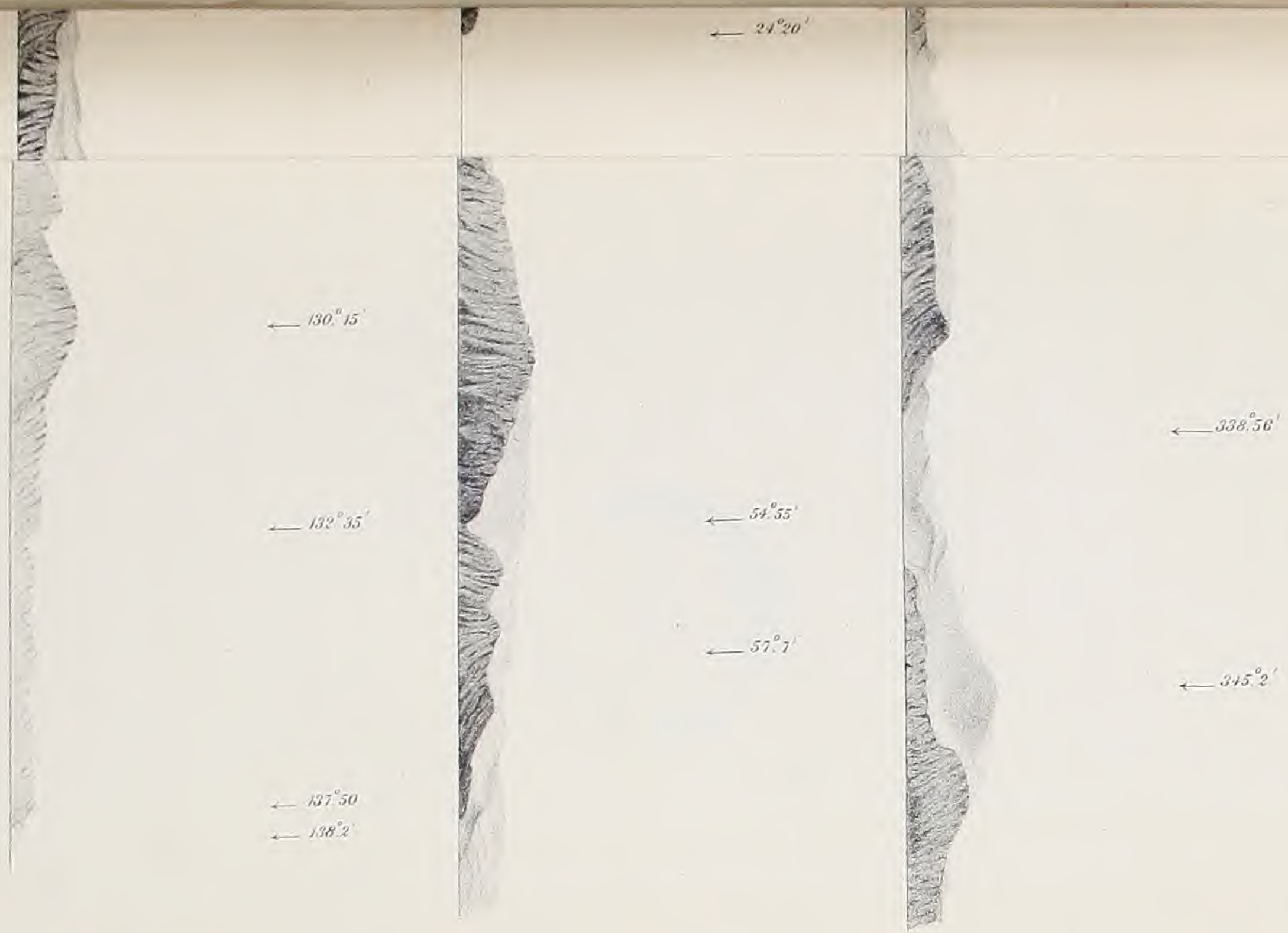
Meridian Altitude.	Index Error.
48° 6′ 50″	On, 33′ 30″.
	Off, 28 30.

For Longitude.
West, 8° 27′ 47″. Altitude. 42° 10′ 30″.

THEODOLITE.

Cape Brevoort, zero. Sun left of zero.
Time, 9h. 19m. 10s.
Altitude, 22° 12′.
Azimuth, 317° 30′. See sketch.
Distance travelled, 20 miles.
Hours travelling, 8¼.
Hours lunch, 1½.


64°35'
66°30'
69°10'
72°10'
82°15'
89°28'
99°37'
101°38'
111°40'
118°30'
121°15'
350°15'
Zero
11°35'
21°
23°50'
24°20'
47°55'
49°15'
50°5'
260°15
261°30'
264°25'
269°30'
275°50'
284°
291°2'
295°30'
305°
321°52'



Longman & Co. 39 Paternoster Row & Bell & Daldy 186 Fleet St. Covent Garden

May 5th to 6th.

Roused the cook at 8 P.M., but as the lamp went out and the cook did not know it, we were a long time before we got our breakfast. Before starting obtained a true bearing of Cape Rawson; Mr. Egerton having sent his sledge on, started with me, travelling over small pieces of old floe and hummocks, but so many sledges having been before me, we had a good road; picked up the sledge "Alert" in an hour's time after starting, and proceeded on by ourselves; the floes from here to Crossing Harbour were larger, three of them we travelled over being 1½ to 2 miles across. Lunched after 3½ hours' travelling; a five-man cooking apparatus is enough to try any one's patience, it took us two hours to get our tea.

South 1·2 b.e. Bar. 29·85. Temp. −10°

Starting after lunch at 6.30 A.M., we arrived on the shores of Greenland at 8.30 A.M.; the travelling after lunch was good, but a very serpentine route; a S.E. wind blowing over Cape Brevoort, which increased as we approached the land.

Encamped close to the cairn built by Lieutenant Beaumont.

The hummocks along the shore here do not extend out for more than 100 yards; you have here and there a floeberg, but they are chiefly composed of boulder ice.

Noon, South, 4·5. Bar. 29·88. Temp. −2°.

After pitching tent, took sights for longitude, but the wind made it very cold work; had tea, but just as pemmican was ready had to take the meridian altitude.

May 6th.

CHRONOMETER.

Time.	Altitude.	Index Error.
9h. 36m. 59s.	46° 19′ 00″.	On, 34′ 20″.
9 37 58	46 21 20.	Off, 28 50.
9 38 40	46 23 30.	

Meridian Altitude.
48° 55′ 10″.
Distance travelled, 15 miles.
Hours travelling, 7.
Hours lunch, 2.
Distance made good, 11½.

May 6th to 7th.

We had a stormy night: and when I roused the cook at 10 P.M., it was moderating a little; by midnight we had finished our breakfast, and as the wind was going down quickly, I went up to the cairn and sketched the opposite shore, taking a round of angles with theodolite, which was very cold work, and you had to leave off every two minutes and run round the cairn to warm yourself; the opposite coast was very distinct.

South, 6·7. Bar. 29·80. Temp. zero. South, 3·4.

On returning to my tent, I found Fred. ready with the empty sledge, so started away with him at 3 A.M. to the southward, with the intention of trying to find a passage into Newman Bay.

The travelling very good, over hard snow, and in some places the icefoot was completely bare of snow; we were both able to ride on the sledge, and the dogs took us at a very good pace, I should think 5 miles an hour, but travelling at that rate against a wind, force three, was very cold; I had frequently to get off and run behind to keep myself warm. After going along for a couple of miles, the pace was too much for old Soresides, who had a fit, so made him fast to a hummock, picking him up on the way back.

As far as the valley between Crossing Harbour and Cape Brevoort, which I estimated at 5 to 6 miles, there was only one place which would be any obstacle to a heavy sledge, but that did not extend for more than twenty yards, and a road could easily be made; at the mouth of the valley there are several mounds about 100 feet high, composed of mud and shingle; passing through these the valley has a very gentle slope for 3 miles, and about 1 mile in breadth. After that the passage, which was very narrow, continued on between raised mounds. After proceeding up the valley for 1½ miles, Fred. and I ascended the highest hill (2,250 feet by aneroid), on the south side of the valley, and just inside Cape Brevoort; we had a magnificent view from the top, and saw that the valley led into Newman Bay, the ice there appearing to be quite smooth, and I should think very good travelling. I tried to get some bearings from the top of the hill, but the southerly wind was so cold that I was unable to get more than three or four.

Arriving back at camp at 12.15 P.M., I found that Mr. Egerton and Dr. Coppinger,

with the sledges "Alert" and "Stephenson," had arrived, and was glad to hear that Lieutenant Beaumont's party were all right.

Calm b.c. Bar. 29·82. Tem. + 10°.

The hummocks along the coast, as far as I went, are composed chiefly of rounded broken pieces of ice, piled up in some places to a height of about 15 feet.

We were very glad to get supper on our return, as we had had only a little biscuit since breakfast, and afterwards were soon in our bags and asleep.

Distance travelled, 18 miles.
Hours travelling, 9¼.
Lunch, none.

May 7th to 8th.

8 P.M. South, 2·3 b.c. Bar. 29·80. Temp. + 8°.

Roused cook at 7.50 P.M. and had breakfast. Mr. Egerton turned his sledge over to Dr. Coppinger and joined my crew with Thomas Smith, Private R.M.L.I., we assisted Dr. Coppinger in arranging depôt. I deposited at the depôt 11 rations, leaving for my crew, which now consisted of 5, four days' provisions.

Lunched at 2 A.M., and after getting all news and giving letters to Dr. Coppinger, started from Greenland at 3.30 A.M.; following the track which we came by, arrived at encampment of May 5th, at 9 A.M.; the travelling was the same as coming.

Obtained sights for longitude. Whilst camping, Mr. Egerton, who had the photographic apparatus with him, wished to take a photograph of the camp, so after we had stood still for five minutes, which is not pleasant in a temperature below zero, he found out that he had forgotten to take the glass out. After a good deal of persuasion he got us to stand again, and then after five minutes' exposure, could not find the cap to put on the end of the apparatus; he kept us so long fumbling about for it with his cold fingers, that we all burst out laughing.

8 A.M. South, 2. Bar. 29·82. Temp. − 5°.

May 8th.

CHRONOMETER.

Time.	Altitude.	Index Error.
9 h. 17 m. 41·5 s.	46° 15′ 10″	On, 34′ 00″
9 18 4·5	46 16 10	Off, 29 30
9 18 25	46 17 10	

Distance travelled, 15 miles.
Hours travelling, 6.
Lunch, ½ hour.

May 8th to 9th.

8 P.M. Calm b.c. Bar. 29·84. Tem. + 10°.

Roused cook at 8 P.M., and got away by 11.30, following the track which we came by; arrived at the end of the large floe at 3.30 A.M., where we lunched.

We tried the plan of getting water boiled whilst going along, as we were on a fairly smooth floe; so secured the cooking apparatus on the sledge and lighted up an hour before lunch; it answered very well, for we had a kettle full of warm water. Mr. Egerton and myself, walking in front of the sledge, compared it to one of the little steam engines you see going about London at night with hot coffee and chestnuts; however, when we halted for lunch, we found that the wicks of the lamp were burnt out, so that we did not gain any time.

Started after lunch at 5 A.M., and arrived on board at 9 A.M., or in fourteen hours' actually travelling from Crossing Harbour to ship.

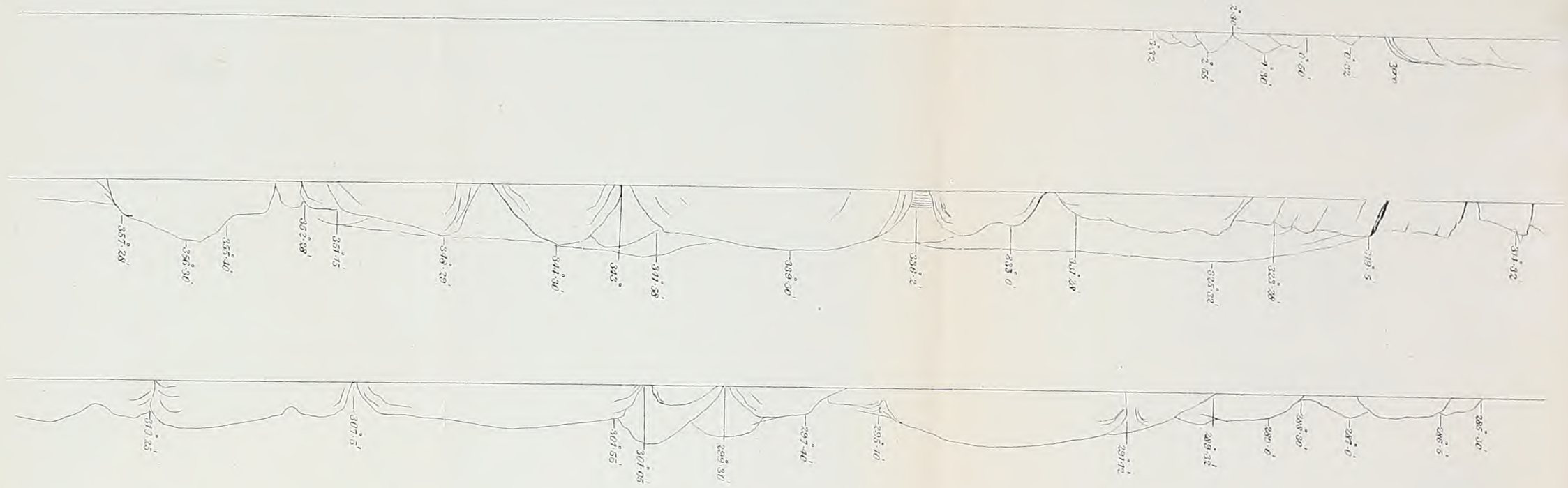
Travelling the same as on first day. Picked up No. 10 flag and the affirmative. Soresides had two fits to-day, so let him go. I am afraid he is too old to be much more use; we picked up Bruin on the floe close to Greenland, and put him into harness again, but he had not pulled for an hour before he got fits, so let him go.

I think that the passage to Newman Bay will be found quite practicable, and informed Dr. Coppinger about it.

Distance travelled, 20 miles.
Hours travelling, 8h. 5m.
,, lunch, 1h. 35m.

I am,
Sir,
Your obedient Servant,
WILLIAM H. MAY.

Captain G. S. Nares.


357°28'
356°30'
355°10'
355°28'
357°5'
349°22'
344°30'
342°
341°18'
339°30'
334°2'
333°0'
337°38'
325°32'
323°28'
319°5'
314°52'
313°25'
307°5'
301°55'
301°05'
299°30'
295°40'
295°40'
291°12'
289°32'
288°0'
286°30'
284°0'
286°5'
282°10'
312
313°
314°
316°
318°
320°
322°
324°
326°
328°
330°
332°
334°
336°
338°
340°
342°
344°
346°
348°
350°
352°
354°
356°
358°
360°

School of Medicine

Weights.

	lbs.	ozs.
5-man tent	24	4
,, poles	21	8
,, sledge	39	0
,, back	8	4
Coverlet and lower robe	31	0
Sail	7	8
8-man trough	5	12
Pick and shovel	13	8
3 bags	24	0
3 duffles..	15	0
3 knapsacks	25	0
Cooking apparatus	13	0
Store bag	17	0
Sledge bottom	2	4
Spare battens	3	7
Sextant	12	0
Theodolite	10	0
Rifle and gun	12	0
Ammunition	2	0
Medical box	3	13
	290	4

Provisions, 40 rations.

Pemmican	30 lbs.	0 ozs.
Biscuit	35 ,,	0 ,,
Bacon	15 ,,	0 ,,
Potatoes	5 ,,	0 ,,
Tea	1 ,,	4 ,,
Cocoa	2 ,,	8 ,,
Sugar	5 ,,	0 ,,
Fuel (spirits)	25 pints.	
Rum	5 ,,	
Pepper and salt	1 lb.	0 oz.
	124	12
7 dogs, for five days	70	0
Provisions	194	12
Constants	290	4
	7)485	0
	69	4 per dog.

H.M.S. "Alert" (at sea),
Lat. 73° 33′ N.; Long. 58° 48′ W.
September 20th, 1876.

Sir,

I have the honour to inform you that I left the ship with the dog-sledge "Clements Markham," 7 dogs (mentioned in the margin), on May 25th, provisioned for ten days; accompanied by and under the personal superintendence of yourself; also accompanied by Captain Feilden, R.A., Naturalist, James Self, A.B., John Hollins, Private R.M.L.I., and Spero Capato (servant).

Black Face (King).
Sal (Queen).
Topsy.
Ginger.
Starver.
Flo.
Bos.

The following are the results of our journey from day to day:—

May 25th to 26th.

3 A.M.
Calm, misty.
Barometer 29·70.
Temp. +31½°.

Left the ship at 10.30 P.M. Whilst crossing Ravine Bay saw a large wolf, which we did not follow, as we thought we should get a shot at him before our return. Arrived at the tent placed at the entrance of Dumbell Bay at 2.30 A.M., and had lunch, leaving there 1 gallon of spirits (fuel) and taking one sleeping bag for yourself. Proceeded after lunch at 3.40 A.M.; encamped at 5.40, three miles beyond Harley Spit, making a short journey on account of it being Hollins and Capato's first trip.

The travelling was very good in some places, between hummocks or close to shore; it was sludgy where water had come up through the tidal cracks; the snow was getting soft in places, but the dogs, who were pulling 102 lbs. each, only required a help in one or two places.

We were all bagged and asleep by 9.30 A.M.; the temperature in tent varied between 50° and 60°, and we slept comfortably without an upper robe.

Distance travelled, 14 miles.
Hours travelling, 6h.
,, lunch, 1h. 10m.

May 26th to 27th.

3 P.M.
N.W. 2·3, o.s.
Barometer 29·62.
Temp. +26°.

Roused the cook at 3.30 P.M., but as it was snowing and very thick we did not hurry to get away.

N.W. 5·6.

Got away at 7.15 P.M., following along the track, as we could not see the land, but it was difficult to pick up any track on account of them being nearly filled up with snow-drift; passed close to the northward of Simmons Island, and as the wind was increasing, and still snowing, we camped when about 3 miles from Depôt Point, at 11.15 P.M., and had lunch. The wolf was following our track, and we had a good look at him, but he was not within shot.

Midnight.
N.W., 2·3; o.
Barometer 29·65.
Temp. +20°.

After our lunch we went to sleep, and roused up again at 7 A.M.; as the weather had cleared a little, had lime juice and biscuit, and started at 8.15 A.M.; we could not make out the track; you were ahead picking out a route; the weather was anything but nice, blowing and snowing. Stopped and encamped at 11 A.M., on account of Hollins, who was not well, about 2½ miles from Hercules Point.

The travelling, which was heavy, on account of the soft snow, was over old floes and some young ice off Depôt Point; in some places amongst the fringes of hummocks round the old floes it was sludgy.

Noon.
Calm; misty.
Barometer 29·80.
Temp. +24°.

The wolf still following, Feilden and I dodged behind a hummock whilst the sledge went on, hoping we should get a shot, but he smelt us, and after waiting until one of my fingers was frost-bitten, we thought it time to go on, and came to the conclusion he was a very clever gentleman.

Distance travelled, 12 miles.
Hours travelling, 7.

May 27th to 28th.

8 P.M.
Calm, misty.
Barometer 29·80.
Temp. +25°

Roused cook at 6.30 P.M. Started at 9.15, and stood in towards Hercules Point; you went a head, picking out route, which was not easy work in this thick weather; the snow was also soft, making it heavy work, as one sank half way up to the knees.

Stopped at 12.40 A.M. for lunch, whilst you and I went on to Hercules Point to find best route through shore hummocks.

Started after lunch at 2 A.M., and got over the ridge of hummocks between us and the shore, and then followed coast line to the northward; the snow on the land was so deep that the dogs, with 4 officers and men assisting with drag-belts, were not able to make any progress; so after getting round Hercules Point, we had to take some of the weights off the sledge and leave them in depôt; proceeding another mile and a half, we encamped on a ridge at 4 A.M. After we had had some lime juice Feilden and I returned with the dogs to bring up the depôt, arriving back at 6, when we soon bagged and all had supper.

6 A.M.
Calm, m.
Barometer 29·65.
Temp. +25°.

Distance travelled, 7 miles.
Hours travelling, 7¼.
,, lunch, 1⅓.

May 28th to 29th.

5 P.M.
Calm, o.c.
Barometer 29·52.
Temp. +24°.

Roused cook at 4.15 P.M., and had breakfast by 5.15. Left a depôt, as the travelling was too heavy to proceed with full sledge, and started at 7, following the coast line; Feilden went over the hills to geologise and shoot.

After half an hour the travelling became easier, and I started up the ravine in Rawlings Bay to try and obtain fresh provisions, while you went on with the sledge for another half hour, and pitched the tent off mouth of ravine for lunch, sending Self back with dogs to pick up depôt. After lunch you proceeded and encamped just to the southward of Mount Julia.

I arrived back with Feilden at 3.45; we having shot 2 ptarmigan and a hare; Feilden also obtained many specimens of fossils.

The travelling was easier to-day, and across Lawrence Bay it was very good.

The wolf was prowling round the camp.

Had supper and bagged by 7.33 A.M. Spliced the main brace, it being the anniversary of our leaving England.

Distance travelled, 8 miles.
Hours travelling, 9½.
„ lunch 2.

May 29th to 30th.

Roused cook at 3.30 P.M., and breakfasted; at 5.30, you and Feilden started away up Mount Julia with theodolite, and had a beautiful day; all the high hills were very distinct; it was nine and a half hours before you returned to camp. Feilden also obtained many fossils. Calm, b.c. Barometer 29·75. Temp. +30°.

Jas. Self and I started away at 5.20 P.M. with the dog-sledge for Depôt Point, taking all extra gear and fossils. Arrived at the depôt (Depôt Point) at 12.45 A.M., and had lunch.

Took from the depôt 44 rations, and deposited there 4 duffle jumpers, coverlet and fossils; leaving there at 3.45 A.M., and arrived back at camp at 11.30 A.M.; found everyone bagged, but awake; had our supper whilst you, Feilden, and the other two men had breakfast.

The travelling to Hercules Point was fair after rounding it; we had to go round the snow cliffs on the ice crossing the hummocks; took to the land again to the southward of snow cliffs, as we had got into a fog, and consequently had to follow the trend of the coast; it was very heavy travelling after this on account of the deep snow, and our progress was slow; the dogs were only just able to drag the light sledge, they being frequently up to their bellies in snow; in one place I went in up to my waist, and had to crawl out on hands and knees, and we were nearly always up to our knees. Coming back the weather being clearer, we crossed Marco Polo Bay on a blue topped floe, which saved us at least 2 miles. The dogs were very tired during the latter part of the journey; we were not sorry to get into our bags, and after supper did not require much rocking to send us to sleep. The weather was clear and foggy alternately, but the fog was low, as you on the top of Mount Julia had it clear, whilst we were in the fog on getting to Hercules Point. Calm, b.c. Barometer 29·80. Temp. +30°.

The wolf was prowling about the camp, but he is very wary, and takes good care not to come within shot.

On our journey to-day Flo had a fit, and was little or no good during the latter part; Starver has been pulling very well.

Hollins had a touch of snow blindness, and my eyes were rather weak; shot to-day 2 hares, 2 ptarmigan.

Distance travelled, 36 miles.
Hours travelling, 15 hours 10 minutes.
Lunch and placing depôt, 3 hours.

May 30th to 31st.

As soon as you had had your breakfast you went away with Feilden, to take some more angles and collect fossils, arriving back at camp at 9 P.M., when we all had lunch together.

After lunch you went away surveying, and Feilden was exploring the country. Self and I went out shooting, but with no luck. 5 A.M. N.W., 6. Barometer 29·70. Temp. +18°.

We all returned to camp at 4·30 A.M., and had supper, which consisted of ptarmigan and preserved meat.

Hollins' eyes were bad, so administered *vini opii*, mine were a little better.

The dogs had no work to-day.

It has been blowing to-day.

May 31st to June 1st.

A nasty day, blowing; at noon you and Feilden went to collect fossils, and returned at 3.30 P.M., when we all roused up and had breakfast.

4 A.M.
N.W. 7·8. o.m.z.
Barometer 29·45.
Temp. +28°.

After breakfast you went up to the small cairn (which had been erected the day before) to take theodolite angles, whilst Feilden went geologising and shooting with Self.

You all returned to camp at 9 P.M., when we had lunch; by the time it was finished the wind had increased to a gale, and in consequence there was a great deal of snow drift, so there was nothing for it but to stay in tent.

At 3.30 A.M. it was still blowing hard, so had supper and remained in bags.

Hollins and myself have been unable to go out to-day on account of snow blindness; after supper Feilden administered *vini opii* to both of us; it was not nearly so painful as I expected.

Dogs have had no work again to-day.

June 1st to 2nd.

The gale of wind which has kept every one in tent since lunch yesterday, lulled at 3.30 P.M.; we have had rather a heavy fall of snow during the night.

5 P.M.
N.W., 5, o.m.z.
Barometer 29·40.
Temp. +28°.

Roused the cook at 3.30 P.M., and had breakfast finished by 5 P.M.

Broke up encampment and started with dog-sledge at 7 P.M. in a snow storm arriving at the depôt (View Point) at 10 P.M., when we camped and had lunch by 11.30 P.M. on the 1st.

Flo who had had three fits since she came back from Depôt Point, had another to-day, so we let her go. Feilden stopped behind and tried to coax her along at first, afterwards tried licking her, but it was no good.

7 A.M.
Barometer 29·48.
Temp. +34°.

It was blowing too hard to proceed after lunch, so remained in bags; had supper at 6.40 A.M., and afterwards started with empty dog-sledge to the northward, passing behind View Hill into the snow valley, and then through the shore hummocks towards Conical Hill, but the wind and drift prevented our going any further.

Feilden went away for an hour geologising, and we returned to the tent by the coast line, arriving there at 1.30 P.M., when we had a meal which was extra.

2 P.M.
N.W. 3. 4, o.m.z.s.
Barometer 29·54.
Temp. +34°.

It has been very misty and snowing in the squalls.

Hollins' eyes all right to-day, but my right one a little shaky.

Placed three hares in a hummock for the use of the northern party.

Flo has not returned yet.

The snow in places was deep, and we had two men dragging.

Distance travelled, 8 miles.
Hours travelling, 9.

June 2nd to 3rd.

10 P.M.
North, 3·4, o.m.
Barometer 29·60.
Temp. +32°.

Roused the cook at 9 P.M., and started at midnight. As it was still blowing we rigged the sail up, and managed to get along with two hands shoving at the back; but after getting across Lawrence Bay we had to have two hands dragging in front, the sledge being very heavy on account of the fossils. Stopped for lunch at 5.30 A.M., and left depôt of gear as we could not get on with a full sledge. Our lamp was a long time burning up, and so you at last would not wait any longer, and we had to content ourselves with cold water.

Started after lunch at 6 A.M., following the coast line; travelling very heavy on account of the deep snow being up to one's knees; encamped at 8.30, close to Hercules Point. Self and myself went back with dog-sledge for depôt, and did not return till 11.30 A.M.; the snow was very heavy and sticky; all the latter part of the day we had three officers and men dragging in front and two shoving behind, and then we made but slow progress. Ginger was not well to-day, and the dogs were not much good in consequence of the number of standing pulls we were forced to have, not being able to keep the sledge going.

Noon.
Calm, b.c.
Barometer 29·70.
Temp. +32°.

Shot 2 ptarmigan.

Hours travelling, 11½.
Distance travelled, 17 miles.
Hours at lunch, ½.

June 3rd to 4th.

Midnight.
Calm, o.m.
Barometer 29·70
Temp. +31°.

Roused the cook at 9. P.M., and started at 11.30 P.M. with half sledge load; rounded Hercules Point, and went over first ridge of hummocks, where we left the half load, and

returned for remainder of gear; picking up the gear we had left on floe, proceeded with a full sledge, and after a good deal of pulling and hauling, got on to a large floe for lunch by 3.30.A.M.

Went on again at 5 A.M.; the mist kept coming on, which made it very difficult for you picking out a route; encamped at 8.45 A.M., about 1 mile N.*b*.W. of Depôt Point.

The travelling, which has been over large heavy floes with barriers of hummocks between them, has been very heavy, in consequence of the deep snow being soft and sticky; in places amongst the hummocks there was sludge. One of the rounded hummocks in the middle of a large floe you estimated at 20 feet.

We have had two officers and men dragging in front, and two shoving behind; by no means easy work, as every now and then one sinks in above the knees. 9 A.M. Calm o.f. Barometer 29·80 Temp. +31°.

The smoked moose deer skin trousers which Feilden and I have been wearing this trip were not comfortable, as they get wet through with perspiration, resembling cold tripe.

Hours travelling, $7\frac{3}{4}$.
At lunch, $1\frac{1}{2}$.
Distance travelled, 7 miles.

June 4th to 5th.

Roused cook at 7 P.M., and started at 9.45. P.M.; passed Depôt Point, and encamped on point just to the northward of Black Cliffs, as you wished to take angles from this position. Travelling heavy; the young ice along the coast line by Depôt Point was sludgy in places, and we were obliged to have three people dragging and two shoving. 8 P.M. Calm, b.c. Barometer 29·90. Temp. +32°.

After a short sleep roused the cook; had breakfast by 5.30. A.M., and shifted our tent on to the shingle; you then went up the hill to take angles with theodolite; Feilden was shooting and skinning birds; Self took dog-sledge and brought on depôt left by me at Depôt Point. I went out shooting, but returned unsuccessful at 2.30. P.M., and found everyone back and ready for supper. We had a most beautiful day, and saw three birds we had not seen before this season. Shot three *tringa canutus*, two ptarmigan, one turnstone. 8 A.M. Calm b.c. Barometer 29·92. Temp. + 33°.

Distance travelled, 8 miles.
Hours travelling, $4\frac{1}{4}$.

June 5th to 6th.

Roused cook at 10 P.M., and started at 1 A.M., with half load, for Dumbell Lake; crossed Black Cliffs Bay, and went over a dip in the land, which took us to the lake; encamped on peninsula between lakes, for the purpose of taking the measurement of the ice; had an extra meal and slept for three hours. Midnight. Calm, b.c. Barometer 29·95. Temp. +30°

Travelling over a large blue topped floe with hummocks on both shores; snow heavy and sticky.

Roused the cook at 11.30 A.M., and as the wind was getting up and the weather threatening, Self and myself hurried away at 1 P.M. with empty dog-sledge, for the depôt left behind, whilst you and the other hands dug down 4 feet in the ice and then came to mud, so you commenced another hole further out. Noon, North, 3·4. o.c.

Returning with the depôt at 6.30 P.M., found everyone ready for supper, so had it and went to sleep. 7 P.M. Calm, b.c. Barometer 29·96. Temp. +30.°

The weather cleared up again in the afternoon.

Saw one skua gull and a flock of geese.

Hours travelling, 10.
Distance travelled, 24 miles.

June 6th to 7th.

Roused cook at 5 A.M.; after breakfast you, Feilden, and Capato returned to the ship, leaving us to dig an ice hole. We commenced digging at 6.30, and got through to water at 10.30 A.M. Calm, b.c. Barometer 30. Temp. +31.

At 10.20 Capato came back from you, telling us about the seal in Dumbell Bay.

At noon had lunch; leaving the tent pitched and provisions inside, I started with Capato for the seal hole; Self and Hollins remained at ice hole to fish, with orders to bring the sledge on.

After watching seal hole for a couple of hours without seeing the seal, saw the dog-sledge crossing the lower part of the bay, so joined them and returned to the ship at 10.20 P.M. The snow made the travelling very heavy.

Distance travelled, 10 miles.
Thickness of ice, 7 feet 7½ inches.
Surface of ice above water, 8½ inches.
Depth of water, 18 feet.

Temperatures.

Surface, set at 35°, 31°·2.
Bottom, set at 35°, 31°·5.
In shade + 30°.

A chart with the track of the sledge and different encampments is appended.

I am,
Sir,
Your obedient Servant,
WILLIAM H. MAY.

Captain G. S. Nares.

Gear left at Dumbell Bay.

8-man tent.
5-man lower robe.
5-man sail.
Cooking apparatus, 4 pannikins, 3 spoons.
Pick and shovel.

Provisions left.

Biscuit, 40 lbs.
Pemmican, 25 lbs.
Bacon, 38 lbs.
Chocolate, 8 rations.
Tea, 48 rations.
Sugar, ½ lb.
Preserved meat, 7 4 lb. tins.
Tobacco, 5½ cakes.

The bacon is in tin, so fat can be used as fuel.

Ammunition left.

20 rounds No. 6 and No. 3.
18 ,, bullets.
11 ,, wire.

Weights.

	lbs.	ozs.
8-man tent	44	0
poles	25	0
lower robe	18	4
waterproof	11	4
cooking apparatus	21	10
trough	5	12
5-man sledge	39	0
back	8	4
coverlet	16	0
sail	7	8
sledge bottom	2	4
Pick and shovel..	13	8
6 bags	48	0
6 duffles	30	0
6 knapsacks	36	0
Store bag	17	0
2 rifles and guns	24	0
Ammunition	10	0
Medical box	3	13
Spare battens	3	7
Theodolite	10	0
Constant	394	12

Provisions, 60 rations.

	lbs.	ozs.	
Pemmican	45	0	
Biscuit	50	0	
Bacon	22	8	
Potatoes..	7	8	
Cocoa	3	12	
Tea	1	14	
Sugar	11	4	
Lime juice	3	12	pints.
Rum	7	8	,,
Fuel (spirits)	30	0	,,
Pepper and salt..	1	0	
	194	2	
7 dogs for 9 days, 2 lbs. per dog ..	126	0	
	320	2	
Constants	394	12	
Total..	714	14	

102 lbs. 2 oz. per dog.

H.M.S. "Alert," at Floe-berg Beach,
8th June, 1876.

Sir,

Taking command of H.M. Sledge "Clements Markham," and accompanied by Dr. Moss, you are to proceed towards Cape Joseph Henry, endeavouring to find Commander Markham's party. Should you miss him you are to proceed to the depôt, and follow back on his track.

After joining company you are to place yourself under his orders.

G. S. NARES, *Captain R.N.*,
Commanding Arctic Expedition.

Lieutenant W. H. May, &c., &c.

H.M.S. "Alert" (at sea),
Lat. 71° 12′ N.; Long. 57° 37′ W.,
23rd September, 1876.

Sir,

In compliance with your letter of June 8th, I have the honour to inform you that I left the ship, accompanied by Dr. Moss and Jas. Self, A.B., on the evening of that day, with the dog-sledge "Clements Markham" and the six dogs mentioned in the margin, provisioned for five days, and taking medical comforts for the relief of Commander Markham's party; the results of my journey are as follows:—

Black Face (King).
Sal (Queen)
Bos.
Ginger.
Starver.
Topsy.

June 8th to 9th.

Left the ship at 11.30 P.M.; lunched at the boats, Black Cliffs Bay at 6.15 A.M.

North, 1·2 o.m.s.
Barometer 29·95.
Temp. +31°.

Starting again at 6.40 A.M., camped at 10.30 A.M. on a large floe 1 mile north of Depôt Point.

The travelling on the whole was good, but the snow was deep in places; crossing Black Cliffs Bay, followed Lieutenant Parr's homeward tracks. Dr. Moss on snow shoes was able to keep ahead of the dogs and pick up the track, which assisted me greatly, as Self and myself had to shove behind in order to keep the sledge moving through the snow, for if it stops the dogs sit down and look at you, and you have to have a one, two, three, haul, to start again.

Self was a little tired, so I did the cooking and made him get into his bag, as I only intended to make a short halt.

Distance travelled, 25 miles.
Hours travelling, 9½.
,, lunch, 1 hour 25 minutes.

June 9th to 10th.

4 P.M.
North, 1·2 o.c.m.
Barometer 30·5.
Temp. +29°.

Breakfasted at 4.30 P.M., and started at 5.45, following up Parr's track, which was of great advantage, as the weather was thick, and picking our own route would have delayed us very much. Sighted and joined Commander Markham's party about 5 miles from View Point at 10.30 P.M. His party of course were very glad to see us, but we were very sorry to hear of the death of George Porter, R.M.A. ; there were only six, including the Commander, who were able to pull a sledge.

We turned with the Commander's party, and after travelling for another mile (during which we halted whilst the sick had lime juice), I camped at 2 A.M., as we were all tired. The Commander's party having only done half a day's work, went on another mile.

Dr. Moss after supper visited the sick.

2 A.M.
North, 2 o.m.
Barometer 30.
Temp. +26°.

The travelling during the first part of the journey was heavy, for amongst the hummocks and sometimes on the floes, we sank in snow up to the knees.

Distance travelled, 11 miles.
Hours travelling, 8¼.
,, lunch nil.

June 10th to 11th, 3rd Journey.

3 P.M.
North, 1·2 o.m.s.
Barometer 30·05.
Temp. +30°.

Roused the cook at 2.30 P.M., and started at 6 P.M. ; went on to Commander Markham's camp; we found them just getting breakfast, so I sent Self into sledge "Victoria's" tent, and I went into "Marco Polo's" and told them all the ship news, to say nothing of our getting a second breakfast.

Commander Markham gave me orders to return to meet your party, so leaving Dr. Moss and medical comforts, started at 7 P.M., and went on towards Depôt Point to meet you, placed a flag on hummock on a large floe, 2 miles beyond Commander's camp.

Met you and party at 9.30, and you sent me back with Egerton and Thornback ; leaving our tent on the way at flag previously placed on floe ; rejoined the Commander at midnight, and after assisting him for a short time, halted for lunch.

Half an hour's march after lunch brought us up to you. Yours and Commander's party encamped at 4.0 A.M., about 4½ miles north of Depôt Point.

8 A.M.
N.W., 2·3 o.m.s.
Barometer 30·07.
Temp. +29°.

Started with the dog-sledge at 4.20 A.M., with two of the invalids, Rawlings and Pearson, on the sledge, arriving at Cane's Folly at 7.20 A.M., where we found Mr. Wootton with eight-man tent. Had our supper, which consisted of hare and preserved meat, and were soon asleep.

The travelling has been good on the whole ; we had a breeze from the northward, which freshened up towards the latter part of the journey, making it very cold.

The dog-sledge whilst travelling with Commander's party, carried the invalids, taking two on at a time.

Distance travelled, 18 miles.
Hours travelling, 11 hours 20 minutes.
Lunch, 1 hour.

June 11th to 12th.

Barometer 29·95.
Calm, o.m.
Temp. +34°.

Started from camp, Cane's Folly, at 7.30 P.M., and met your party at 9.15 ; took Thornback and Simpson on sledge, and returned to Cane's Folly ; lunched and waited the arrival of your party.

We all camped at Cane's Folly, and from 2 A.M. to 5 A.M. packing the provisions to be left in depôt here, and you were rigging up the twelve-man sledge as an ambulance to carry 4 men.

In consequence of the high temperature, the travelling was not so good as yesterday ; it being very sludgy in places.

Distance travelled, 12 miles.
Hours travelling, 5.
Detained packing provisions, &c., 4 hours.

June 12th to 13th.

Calm, o.c.
Barometer 29·95.
Temp. +32°.

Started at 8 P.M. for the ship, with the two invalids, Shirley and Pearson, on the sledge ; crossing Black Cliffs Bay the snow was deep, making it heavy work both for the dogs and us ; the upper part of our right runner carried away, so fished it with spare battens ; stopped for twenty minutes at the boats, to give the invalids some lime juice.

Lunched in Ravine Bay at 2 A.M.; administered champagne, Bagot's extract, and a little calve's foot-jelly to Shirley and Pearson; started after lunch at 3.20, arriving on board at 6.45. A.M. The travelling fair.

Distance travelled, 22 miles.
Hours travelling, 9.
Lunch, 40 minutes.

June 13th to 14th.

Left the ship at 5.45 P.M., and picked up yours and Commander's party at 8.30 P.M.; gave to the latter medical comforts and soft bread.

Returned to the ship with Lawrence, Harley, and Winstone on the sledge. The two former not being able to haul any more, and left Thornback with Commander's party.

Left at tent, Mushroom Point, 6 4-lb. tins ox cheek and 4 gallons of rum.

Arrived at the ship at midnight on the 13th.

Distance travelled, 15 miles.
Hours travelling, $6\frac{1}{4}$.

Before concluding, I wish to bring to your notice Jas. Self, A.B., who has now accompanied me on three trips, he is a most willing and able man, and looks after the dogs very well.

I am, Sir,
Your obedient Servant,
WILLIAM H. MAY.

Captain G. S. Nares.

Weights.

	lbs.	ozs.
5-man tent	24	4
„ poles	21	8
„ lower robe	16	0
3 bags	24	0
2 duffles	10	0
3 knapsacks	20	0
5-man cooking apparatus	13	0
Sledge bottom	2	4
„ back	8	4
8-man trough	5	12
Spare battens	3	7
Waterproof sheet	10	0
Medical box	3	13
Rifle and gun	12	0
Sledge	39	0
	213	4

Provisions, 15 Rations.

	lb.	ozs.
Pemmican	11	0
Biscuit	13	0
Bacon	5	8
Potatoes	1	14
Cocoa	0	15
Tea	0	8
Sugar	2	13
Lime juice	0	15
Rum	1	14
Fuel (spirits)	15	0
Salt and pepper	1	0
Medical comforts	50	0
	104	7
6 dogs, 4 days	48	0
Provisions	152	7
Constants	213	4
	365	11
	60	15 per dog.

H.M.S. "Alert," at Floe-berg Beach,
MEMO. 18*th June*, 1876.

Although I have every confidence in Lieut. Aldrich's judicious guidance of his party, after the general outbreak of scurvy among the travelling crews of the Northern Division, it is very probable that his party may be also struggling back with one or more sick men, and in want of relief. You are therefore to proceed with H.M. Dog Sledge "Clements Markham," accompanied by three men, and following the usual track, endeavour to fall in with him.

You are first to visit the tent at Depôt Point. If the weather is clear on your starting from that place, walk over the hill towards the old position of the depôt. From the summit of the hill the depôt at Cape Joseph Henry is easily distinguished; also, unless hummocks intervene, any tent pitched on the ice midway across the bay. Should you observe that the depôt at Joseph Henry still remains intact, you are to visit it, and leave a notice of your proceedings with the accompanying letter. From there you are to cross the land by passing to the north on the east side of View Hill, and then ascend the valley running between Observation Peak and the high mountain south of it. Arriving on the shore in James Ross Bay, you are to follow on Lieut. Giffard's track to the depôt he placed for Lieut. Aldrich's return on the spit at Cape Colan. Near the small bay on the east side of Cape Hecla a staff has been erected, and Lieut. Aldrich informed of its position, you are therefore to visit it and leave a notice.

At Cape Colan, where the party were due on the 6th June, you will be sure to obtain information as to their movements. If Lieut. Aldrich has gone down Clements Markham Inlet, you are to return to the depôt at Joseph Henry, and if you arrive before him, wait his arrival as long as possible.

You must keep a very close watch on the state of the ice; once the thaw has regularly set in it will be impassable for the dogs, and the heavy hummocky floes nearly so, if not quite, between Joseph Henry and Depôt Point, for men. You are on no account to extend your absence from this ship beyond the 1st July.

On passing Depôt Point leave a flag ready for hoisting at the extreme end of the Cape, or anywhere where you are sure there is a white background. This is only to be displayed when Lieut. Aldrich arrives there.

G. S. NARES, *Captain.*

To Lieut. May,
H.M. Sledge "Clements Markham."

H.M.S. "Alert" (at sea),
Lat. 59° 35′ North. Long. 53° 25′ West,
Sir 9*th October*, 1876.

Black Face (King).
Sal (Queen).
Ginger.
Bos.
Topsy.
Starver.

In compliance with your memorandum of June 18th, I have the honour to inform you that I left the ship with the dog-sledge "Clements Markham," Jas. Self, A.B., Wm. Malley, A.B., James Thornback, A.B., and the six dogs mentioned in the margin, on the evening of that day, provisioned with twelve days' groceries, and 8 lbs. of pemmican, to meet Lieutenant Aldrich and party, taking medical comforts for their use in case they wanted them. The following are the results from my journal :—

June 18*th to* 19*th.*

3 A.M.
North, 2·3, m.
Barometer 30·18.
Temp. +28°.

Left the ship at 10.30 P.M.; arrived at the tent, Mushroom Point, at 12.30 A.M., and took from there all the medical comforts (with the exception of one tin of arrowroot and one of milk), and one gallon of spirits. Arrived at Harley Spit at 2.30 A.M., and lunched; arrived and camped at Cane's Folly at 8.20 A.M. The travelling as far as Mushroom Point was very good; crossing Ravine Bay the snow was softer, and amongst the hummocks it was heavy; from Harley Spit to boats the travelling again was very good; crossing Black Cliffs Bay it was very heavy, as every 20 or 30 yards we came across soft snow, the sledge sinking deep into it, and the dogs useless, being up to their bellies and hardly able to get along themselves, so we had to drag the sledge across these places ourselves.

Shot a goose close to the boats, which we had for supper.

Took from tent at Cane's Folly three tins of preserved meat for dogs, and filled our spirit cans up, as we found the 8-man lamp (which I had taken to gain time) used with

the 5-man cooking apparatus very extravagant, burning 6 to 7 pints of spirits in lieu of 2 to 3 pints.

Ginger has been very sick from eating the skins of birds, and consequently has not been much good.

Distance travelled, 22 miles.
Hours travelling, 9.
Lunch, 1.

June 19th to 20th.

Roused the cook at 5 P.M.; I started off to Depôt Point at 6.45, but could not make out any alteration in the depôt at View Point, nor could I see anything of Lieutenant Aldrich's camp on the floe. North, 2·3, o.m. Temp. +30°.

Returning to Cane's Folly, started with sledge at 9 P.M.; lunched at midnight; started again at 1 A.M.; passed Porter's grave and picked up 56 lbs. of pemmican close to one of Commander Markham's old encampments; arrived at the depôt, View Point, at 5.30 A.M. Whilst I looked through the papers at depôt, I sent Malley up the hill, and he saw H.M. sledge "Challenger" amongst the hummocks, just off the mouth of Snow Valley, so fired gun to attract attention. I walked along the icefoot and met Aldrich, and was very glad to hear that although his party were all attacked by scurvy, none as yet had bad symptoms; he walked back with me to my tent, and we had supper together, sending Malley to his camp with some medical comforts and to tell them all the news.

The travelling has been good; amongst the hummocks there was a good deal of sludge, and the snow was soft in places.

We destroyed the depôt as soon as we saw Aldrich's party; rather late in bagging, as we had lots to talk about.

The dogs were a good deal done up; last night Topsy gave Starver a very nasty bite in the stomach, making a large hole there, consequently both she and Ginger (who has been sick constantly since leaving the ship) had fits, and during the latter part of the journey we have been obliged to carry Ginger on the sledge. Topsy is also lame from a bite which Sal gave her. So to-night instead of making them all fast together, I had them fastened up in couples.

Distance travelled, 18 miles.
Hours travelling, $9\frac{3}{4}$.
,, lunch, 1.

June 20th to 21st.

Roused cook at 7.15 P.M., and sent Malley and Thornback as soon as they had had their breakfast to assist "Challenger's"; Self and I packed the sledge, taking "Challenger's" depôt. Calm, o.m. Barometer 29·75. Temp. +32.°

At 10 P.M. Aldrich came in, and we removed the stones from the depôt, making everything as level as possible; we then took the dog-sledge through the first ridge of hummocks, and leaving Self to pitch the tent and unpack sledge, Aldrich and I went back to his party, who by this time had fallen out from the drag ropes with the exception of Ayles; they were all much affected at seeing us, and could only just crawl along through the hummocks; how they managed to get a sledge along one can hardly imagine. Aldrich, Ayles, Malley, Thornback and myself dragged the sledge through the hummocks up to where my tent was pitched, and we then had lunch at 4 A.M.

During lunch time, packed the gear of both sledges on the "Challenger." Self and myself took empty cases and all gear that could be left behind into View Point with dog-sledge, and then followed Aldrich, who had not got very far before we picked him up. The plan of travelling Aldrich adopted was, himself, Ayles, Malley, Thornback, and myself dragging the "Challenger," Self with dog-sledge taking the invalids along by short fleets, but even then we found we were detained by the invalids. Camped at 9.30 A.M. 9 A.M. Calm, b.c. Barometer 29·95. Temp. +36°.

The travelling has been very heavy, "one, two, three, haul" nearly all the time over hummocks.

Dogs a little better; Starver had another fit; Ginger takes his food now.

Took 20 lbs. of pemmican for dogs' meat from View Point Depôt.

Aldrich has joined me in my tent I am glad to say, and Malley or Thornback sleep in his; the medical comforts are very much appreciated.

Distance travelled, 8 miles.
Hours travelling, 9.
,, lunch $1\frac{1}{2}$.

June 21st to 22nd.

9 P.M.
Calm, b.c.
Barometer 29·75.
Temp. +34°.

Roused cook at 8.25 P.M., and started by 11.25. It takes us a long time camping and getting under way, on account of the extra cooking done for the invalids, and also packing the sledge, as we are only five to take down the two tents; the dog-sledge starting off with the invalids as soon as breakfast is over, and not getting in till after the tents are pitched.

Dog-sledge started this morning with the excuse of pitching the tent two or three miles on for the invalids, but in reality to take down the cross erected over Porter's grave, as Aldrich did not wish his men in their present weak state to know about it.

On account of the Sergeant not being so well this morning, Aldrich thought it better to put him on the sledge, so that the collapsible boat had to be left behind; after going one and a half miles we had to wait an hour for the invalids to come up, as the dog-sledge is not able to get along with more than two at a time; we then went on for another two miles, and lunched at 2.50 A.M., the dog-sledge going back to replace the cross and pick up tent gear.

Midnight.
Calm, b.c.
Barometer 29·90.
Temp. +34°.

Started after lunch at 5.20, and travelled at a fair pace up to 10.45, when we camped about four miles north of Depôt Point.

11 A.M.
N.N.W., 4·5 b.c.
Barometer 30.
Temp. +34°.

Dog-sledge in the afternoon took Good and Doidge on to place fixed for encampment, and then went back to pick up Stubbs and Mann; the latter makes but slow progress, and the sledge had to go back almost to our lunch place. Stubbs fainted before getting to encampment.

The travelling during the first part of the journey was good, but towards the end the snow was getting very sticky.

Just as we were starting this morning, Aldrich thought he saw a sledge coming through the hummocks, so went on with dog-sledge, but it turned out to be Flo, the dog we let go at View Point on June 1st; she was looking as lean as a lantern, but could not be tempted to approach us.

Dog-sledge. Distance travelled, 20 miles.
"Challenger." ,, ,, 9 miles.
Hours travelling, $8\frac{3}{4}$.
,, lunch and detained, $2\frac{1}{2}$.

June 22nd to 23rd.

11 P.M.
N.N.W., 2·3, o.c.
Barometer 30·05.
Temp. +34°.

Roused cook at 10.30 P.M. It had been blowing fresh during the night, but was falling when I roused the cook.

Started at 1.25 A.M. Dog-sledge took Stubbs, Doidge and five-man tent to the large floe off Depôt Point, where they pitched and returned for Good, Mann, and Mitchell, the latter not being so well this morning.

"Challenger" arrived at five-man tent at 4.15, and pitched tent for lunch, as the wind was very cutting, the invalids feeling it a good deal; the dog-sledge did not return to lunch encampment till 6 A.M., as it is as much as the dogs can do to drag two men at a time. Altered the weights for the latter part of the journey, taking the five-man tent and gear on "Challenger." Started at 7.15, and arrived at Cane's Folly at 11.30, where we found Parr and Feilden who were there trying to procure game. Parr kindly took the flag and placed it on Depôt Point, so that you should see it from our cairn.

11 A.M.
S.W., 4·5.
Barometer 29·75.
Temp. +35°.

The travelling has been heavy, frequently sinking in the snow above the knees; during the second part of the journey it was heavier; a great many "one, two, three, hauls," and not an inch; a great deal of sludge and some water amongst the hummocks.

All the "Challenger's" were glad to get so far, and to find some hares and geese for their consumption; Ayles is not so well, having a stiff knee, which has been brought on sooner by the pace we have been travelling; but we must try and keep pretty well a-head of the thaw, as it is, the snow is getting very moist, and our feet are wet through all day.

Dog-sledge. Distance travelled, 20 miles.
"Challenger." ,, ,, 7 miles.
Hours travelling, 6.
,, lunch and detained, 3.
Dog-sledge. Travelling, $9\frac{1}{2}$ hours.

June 23rd to 24th.

S.W., 6·7, o.c.
Barometer 29·98.
Temp. +34°.

Roused cook at 10.30 P.M., and started at 2.30 A.M. We left everything behind we could, only taking on 24 rations; took from tent Cane's Folly 3 lbs. of bacon, three 4 lb. tins of preserved meat for dogs, and 7 geese which Parr and Feilden had shot.

Lunched at north end of Simmons Island; started after lunch at 11.10, arriving at boats at 3 P.M. Dog-sledge did not get in for 2¼ hours after us. The five of us found great difficulty during the latter part of the journey in getting the sledge along.

The travelling during first part was heavy, frequently sinking up to the knees in the sticky snow, and during the second part amongst the blue tops we had standing pulls for over 100 yards frequently, the snow being so deep that we were obliged to crawl on all fours, as we sank so deep on our feet; there was water under the snow, and it was very wet work.

3 P.M.
S.W., 4·5, o.c.
Barometer 29·98.
Temp. +35°.

Broke the upper part of the right runner and back of the dog-sledge; fished them with spare battens.

Had goose again for supper.

Distance travelled, dog-sledge, 16 miles.
" " "Challenger," 6 miles.
Hours travelling, dogs, 11 miles.
" " "Challenger," 8½.
" at lunch and detained 3.

June 24th to 25th.

Roused cook at 3.30 A.M., and had breakfast. Wind moderating, started at 7.15, adopting the same plan of travel as before. Stopped for lunch at 11.15, in Ravine Bay; started again at 1.30, and arrived at tents, Mushroom Point, at 3 P.M., where we had 3 hours' rest and tea. Started from tents at 6.30 P.M., made sail on "Challenger" soon after starting; at 10 P.M. observed you and party coming out to relief; after meeting you went on to the ship with dog-sledge, taking Good and Mann; arrived on board at midnight.

4 A.M.
S.W., 2·3, b.c.
Barometer 30·05.
Temp. +34°.

The travelling round Harley Spit was good, and the wind having gone and a bright day, it was so hot that we were hauling in our drawers and shirts, but the wind springing up on rounding Harley Spit, we soon put on our trowsers and jumpers; crossing Ravine Bay the snow was very heavy and deep, and we had to have a great many standing pulls.

6 P.M.
S.W., 6·7, b.c.
Barometer 30.
Temp. +35°.

Took from tents, Mushroom Point, 3 tins of ox cheek, a small bag of biscuits, 1 pot of milk and 1 of arrowroot.

Before concluding, I wish again to bring to your notice Jas. Self, A B., who has worked with the dog-sledge all the time; he was most indefatigable in his exertions to help the invalids along, and is a very trustworthy man.

I am,
Sir,
Your obedient Servant,
WILLIAM H. MAY,
Lieutenant.

Captain G. S. Nares.

Weights.

	lbs.	ozs.
5-man tent	24	4
" 4 poles	21	8
" sledge	39	0
" back	8	4
" bottom	2	4
" Lower robe	16	0
" Waterproof	10	0
8-man trough	5	12
Cooking apparatus	16	0
Medical box	3	13
4 bags	32	0
4 knapsacks	32	0
2 spare battens	3	7
Rifle and gun	12	0
Constant	226	4

Provisions.

	lbs.	ozs.	
Pemmican	8	0	
Biscuit	42	0	
Bacon	18	0	
Potatoes	9	0	
Cocoa	3	0	
Tea	1	8	
Sugar	12	0	
Fuel (spirits)	16	0	pints.
Rum	6	0	„
Pepper and salt..	1	0	
Lime juice	6	0	„
Medical comforts	40	0	
Provisions	162	8	
Constant	226	4	
	388	12	
	64	13	per dog.

Provisions for dogs were picked up at the different depôts.

"DISCOVERY."

LIEUTENANT ROBERT H. ARCHER. ORDERS TO, 27TH MARCH. REPORT OF, 4TH APRIL. ORDERS TO, 7TH APRIL. ADDENDA, 13TH APRIL. REPORT OF, 4TH MAY. SLEDGE JOURNAL, 8TH APRIL TO 2ND MAY.

H.M.S. "Discovery," at Discovery Harbour,
27th March, 1876.

MEMO.

It being of great importance to ascertain the state of the provisions left at Hall's Rest, by the "Polaris,"—

I desire you will leave the ship to-morrow the 28th, as early as possible, with a dog-sledge, victualled for 10 days, accompanied by Dr. Coppinger, and the men named in the margin, making the best of your way across Robeson Channel to Hall's Rest; there taking a complete inventory of what you can find, tasting some of the things and bringing back a few samples, leaving the remainder carefully secured.

Thos. Simmonds,
C. Fele.
Danl. Girard, A.B.
Hans, Esquimaux

A list of the articles left by the "Polaris," I enclose for your information. The accompanying record is to be signed and dated by you, and buried 20ft. magnetic north of Hall's Grave.

Not printed.

A few notes on the state of the ice and the place for crossing will be of great assistance.

This being a service on which despatch is necessary, you will use your utmost endeavour to return as early as possible.

I wish you every success.

H. F. STEPHENSON,
Captain.

To Lieutenant Archer,
H.M.S. "Discovery."

H.M.S. "Discovery," at Discovery Harbour.
4th April, 1876.

Sir,

In obedience to your memo. of the 27th March, I left the ship on the 28th, at 8 A.M., accompanied by Doctor Coppinger and the men named in the margin, with a sledge, victualled for 10 days, and drawn by twelve dogs; the average weight per dog being 54 lbs. After leaving Distant Cape at 10.30 A.M., we found the travelling very difficult, the ice being rough, and the snow deep; at one place we broke all the uprights on one

Thos. Simmonds.
Danl. Girard.
Hans.

side of our sledge, which we repaired with a clip. At 1 P.M., we lunched, being then only about $\frac{3}{4}$ mile from the Cape. After this, however, the travelling improved greatly, the snow getting harder as we advanced. At 6 P.M. the clip catching a piece of hard ice, broke the bearer, so we encamped for the night and fished it.

We started the next morning at 8 A.M. and found the travelling better; at 11 A.M. we came to a short heavy nip, where we had to unload the sledge. After this, we came to some good travelling ice until the evening, when a strong breeze, with thick driving snow, compelled us to halt.

We had found the iron clips had made the travelling so heavy that we took them off and used a lashing in their place. The next day, having repaired our sledge, we proceeded and found the travelling better than the first day, though not so good as that of the 29th, till we got close to Cape Lupton, where we had to carry the sledge again We slept that night under the gable part of the Cape on the ice-foot.

The next morning we started at 9 A.M., the thermometer showing —40°, which was the coldest we had whilst away, and proceeded along the ice-foot to Hall's Rest, where we arrived at 11 A.M., having been 25 hours on the march since leaving the ship.

I then proceeded to inspect the stores in depôt there.

The roof of the observatory was partly blown in, and there was a great deal of snow inside, but the stores were apparently none the worse.

The observatory is about 13ft. by 9ft., and 6ft. 3in. high at the sides, with a sloping roof; it is, however, held together chiefly by hooks, and is not therefore very tight. In the roof are two slits for transit instruments, which close very badly; before leaving we secured it as well as we could with a few rusty nails and some cod line.

I enclose a list of the provisions found there, which, it will be seen, agrees fairly well with the list given by the Polaris' Officers, but is altogether different in the smaller and more unimportant items. *Not printed.*

The bay is quite open, and must have made very bad winter quarters.

The bread in the barrel is good, but that in the bags is partially mouldy. The preserved meats, off which we dined that evening, are excellent, so were the hams. The pemmican was good, but we all thought it of inferior quality to our own. The other stores we did not taste, but have brought back samples of each, which have been found satisfactory.

We found a record in the observatory, signed by Captain Buddington, which I gave you on our arrival on board. *Not printed.*

We found a few articles scattered about; a coil of insulated wire, an ice saw, an iron boat davit, two iron dredge frames, several feet of flat iron, some shell for 12 pr. gun, a box of glass (probably photographic plates) and a small 2-man tent.

Captain Hall's grave was in a good state of preservation, and is about $\frac{1}{4}$ mile S.S.E. (true) of the observatory; at the head of the grave is a cabin door, or part of a bulkhead, on the sea face of which was the following inscription:—

In Memory
of
Charles Francis Hall,
late Commander
U.S. steamer Polaris,
North Pole Expedition.
Died
November 8th, 1871. Aged 50 years.
"I am the resurrection and the life, he that believeth in me though he were dead yet shall he live."

On the opposite side, in a running hand—

To the Memory
of
C. F. Hall,
late Commander of U.S. North
Polar Expedition.
died Novbr. 8th 1871.
Aged 50 years.

The letters were sunk in the wood, and everything looked in a good state of preservation; a large crowbar was stuck in the grave about a foot from the headstone, and a small flat piece of upright stone was at the foot. The willow mentioned by Captain Tyson as having been planted here, was alive and doing well.

The sastrugi showed signs of strong northerly winds; the sail with which the observatory had been covered was laying on the south side of the house, with part of the roof.

The following day I had intended to complete the work at the depôt, and restore it in readiness for a start the morning of the 2nd, but a strong breeze, which rapidly freshened to a stiff gale, prevented me from doing much on that day, and we had to put the tent up in the observatory to keep the wind out. In the evening the force of the wind must have been 9, the thermometer—19°, with thick driving snow, made it dangerous to leave the observatory.

The morning of the 2nd was fine and clear, and our sledge being repaired, chiefly by the ingenuity of Hans, we re-stowed the provisions, and, having lunched, started back for the ship at noon. By keeping straight out of the bay instead of going to Cape Lupton we saved about 4 hours' travelling, and struck our old tracks about 2½ hours after leaving Hall's Rest, we were therefore saved the time and trouble of choosing a new route; owing to this fact, the improved condition of our sledge, and the lighter weight, we were enabled to get back much quicker than we went.

At 7 P.M. we came to the place of our camp on the night of the 29th, and we there encamped for the night, and starting on the morning of the 3rd April, at 8.30 A.M. we reached the "Discovery" at 9 P.M., having made good 19 nautical miles, during which we had twice to unload the sledge, and having completed the whole of the homeward journey in 18 hours.

The only traces of animal life we saw were some bear tracks near Cape Lupton, rather old ones, a lemming caught at our first night's camp, and a few hare tracks at Hall's Rest.

The behaviour of the men was excellent, and the dogs worked very well.

As I wished to travel back light, and there appeared to be a lack of fuel at the depôt, I left 45 rations of stearine (8 lbs. 7 oz.) and 10 rations of bread (8 lbs. 12 oz.) in the observatory. I also deposited the record you gave me 20 ft. magnetic north of Hall's grave, and added to it the date of my arrival there, a list of the provisions in depôt, and a few remarks on the state of the ice in the basin. I took some sights at Polaris Bay to obtain its meridian distance from Discovery Harbour, but owing to my chronometer continually stopping, they were of no use.

I have the honour to be,
Sir,
Your obedient servant,
ROBERT H. ARCHER, *Lieut.*

Captain H. F. Stephenson,
H.M.S. "Discovery."

7th April, 1876.
H.M.S. "DISCOVERY," at Discovery Harbour.

Thos. Simmonds, Capt. Focle.
Geo. Bunyan, P.O., 1st C.
Danl. Girard, A.B.
Saml. Bulley, Stoker.
Wm. Waller, Pvte. R.M.
Rt. Hitchcock, A.B.
Jas. Thornback, A.B.
Jno. S. Saggers, A.B.
Jno. Murray, Pvte. R.M.
Wm. Sweet, Stoker.
Jno. Cropp, Gunnr. R.M.A.

MEMO.

1. The line of exploration to be undertaken by you to the westward, up Lady Franklin Sound, is to determine the continuity of Grant Land, which I wish to be considered of the first importance, as well as deciding whether Lady Franklin Sound is a bay, fiord, or channel.

2. As soon as you are in all respects ready (weather permitting), you will start with a 12-man sledge, victualled for 50 days, accompanied by Sub-Lieutenant Conybeare, with an 8-man sledge, victualled for 42 days; travelling together for 7 journeys, then completing your provisions from Mr. Conybeare's sledge, who will, on leaving you, deposit a depôt of 7 days for your return journey. In selecting a place for this depôt, you must be careful it is secure from being washed away or destroyed by falling cliffs, &c.

3. Both sledges leave the ship on the 8th April. Mr. Conybeare fills up Lieut. Archer's sledge with 120 rations (or 10 days for 15 men), and deposits a depôt of 84 rations (or 7 days for 12 men), on the 15th April, returning to the ship on the 22nd April. Lieut. Archer proceeds alone, having 53 days' rations for 12 men, and will be due at the depôt again on 3rd June, and due on board the ship 10th June.

4. You must on no account cross any strait or channel without the assistance of a boat; from the known currents in this neighbourhood, the smallest rent in the ice becomes impassable in less than an hour.

5. A day's halt for the purpose of ascending a hill that overlooks the adjoining country will always add much to the general information.

6. Changing your hours of travel from day to night must depend upon yourself—the latter has always been found the most agreeable.

7. Deposit at various intermediate positions, as well as at your most advanced point, printed records of the expedition, with which you are supplied, filled up and signed by yourself.

8. Care is to be observed, in encamping under any very precipitous cliffs, from falling *débris*, which frequently takes place in these regions.

9. Keep ample notes and remarks upon the coast you travel along, with data for putting on paper the coast or islands you may discover. To assist the memory, name on your skeleton chart all capes, headlands, bays, inlets, &c., if possible, from something characteristic of themselves, and your most advanced position is to be termed "Archer's furthest," leaving for your return the correction of the dead reckoning by the astronomical observations you may have been enabled to obtain, without sacrificing to them time that might be occupied in marching.

10. Any observations on the set of the tides in Lady Franklin Sound, will be of much interest.

11. The time of your return on board must depend upon when the thaw sets in, which in previous expeditions further south was during the first week in June, therefore the 10th of June at the latest, as much earlier as you may consider necessary, to avoid the mountainous torrents breaking up the ice-foot near the land.

12. Before parting with Mr. Conybeare, you have my permission to change any of your crew for his, with the exception of the captain of his sledge; and any remarks or suggestions you may consider desirable at my disposal for furthering the service on which you are employed shall be acted upon by your sending me word, particularly the place most suitable for a boat to be left.

13. "Ireland's Eye," McClintock's furthest in 1853, is in Lat. 77° 50′ N., Long. 115° 29′ W.; it was there he was stopped by the heavy polar pack which blocks up the entrance to Robeson Channel, and has prevented the "Alert" from pushing further north, and which I expect you will meet on the west coast of Grant Land.

14. As I am unable to give you any precise instructions on this service, I must leave it to your judgment and discretion how far it may be carried out with safety and success.

15. In conclusion, I must assure you of the deep interest I have in the welfare of yourself and party, wishing you every success in your efforts, health, fine weather, and a safe return, which I shall anxiously look forward to early in June.

H. F. STEPHENSON,
Captain.

To
Lieut Archer.

ADDENDA.

Lady Franklin Sound,
13th April, 1876.

22nd April, halt and secure depôt, Mr. Conybeare returning to the ship on the 23rd, and is due on board by the 7th of May. Lieut. Archer going on with 8-man sledge for 17 days, till the 9th May, returning to depôt in 17 days, which is the 26th May. Starts back from depôt on the 27th, arriving on board in 15 days, the 10th June, leaving him a surplus of 8 days' provisions. The four men to return out of your present crew with the 12-man sledge are

Geo. Bunyan, Q.M. James Thornback, A.B.
Rt. Hitchcock, A.B. Jno. Cropp, Gunner R.M.A.

H. F. STEPHENSON,
Captain.

H.M.S. "Discovery," at Discovery Harbour,
4th May, 1876.

SIR,

1. In accordance with your memo. of the 7th April, I started on the following day at 12.30 P.M., with a 12-man sledge victualled for 50 days, and accompanied by Sub-Lt. Conybeare, with an 8-man victualled for 42 days. The crews were composed of the following men:—

12-Man Sledge.

Lieut. Archer.	Robt. Hitchcock, A.B.
Thos. Simmonds, Capt. Fcle.	Willm. Waller, Private R.M.L.I.
George Bunyan, P.O. 1st C.	John Murray. ,, ,,
Danl. Girard, A.B.	John Cropp, Gunner R.M.A.
John Saggers, A.B.	Saml. Bulley, Stoker.
Jas. Thornback, A.B.	William Sweet ,, .

8-Man Sledge.

Sub.-Lt. Conybeare.	J. E. Smith, Sailmaker.
Frank Chatel, Capt. Fcle.	William Wellington, Sergt. R.M.A.
David Stewart, Capt. F.T.	Henry Edwards, A.B.
William Ward, Armourer.	Hy. Winsor, Carpt. Crew.

2. You accompanied us with a dog sledge for a short distance, when, leaving Mr. Miller, Engineer, in charge of my sledge, I proceeded with you at a greater speed than the heavy sledges were capable of maintaining.

3. After crossing the western entrance where the snow was very deep, we tried to get to the westward along the south side of Sun Land. Finding, however, the road was very bad in this direction, the next day we retraced our steps, and meeting the sledges at Sun Cape, you directed Sub.-Lt. Conybeare to follow us up the harbour, where we afterwards found better travelling.

4. We arrived at Cape Straight on the evening of the 10th April, having had some very heavy work across the land and the mouth of Conybeare Bay. Here you decided to await the arrival of the heavy sledges, and we employed the two following days in exploring the neighbourhood, but beyond discovering that Cape Straight stood on an island we were unable to do much owing to the foggy weather.

5. The sledges arrived at Cape Straight on the evening of April 12th, and the following day we proceeded towards Keppel Head. During the forenoon the 12-man sledge capsized, and we found that the iron on one runner was broken. You therefore decided that I should take command of the 8-man sledge, handing over the 12-man to Sub.-Lt. Conybeare. In a memo., dated April 13th, you gave me the instructions consequent on this alteration. The crews were also told off as follows :—

8-Man Sledge.

Lieut. Archer.	Willm. Waller, Pte. R.M.L.I.
Thos. Simmonds, Capt. Fcle.	John Murray, ,, ,,
Danl. Girard, A.B.	Saml. Bulley, Stoker.
John Saggers, A.B.	Willm. Sweet, ,,

12-Man Sledge.

Sub.-Lt. Conybeare.	Henry Winsor, Carprs. Crew.
Frank Chatel, Capt. Fcle.	Henry Edwards, A.B.
David Stewart, Capt. F.T.	George Bunyan, P.O. 1st C.
William Ward, Armr.	Jas. Thornback, A.B.
J. E. Smith, Sailmr.	Robt. Hitchcock, ,,
William Wellington, Sergt.R.M.A.	John Cropp, Gunner R.M.A.

6. On the 14th April, after accompanying us to Keppel Head, you and Mr. Miller left us, and returned to the ship. We then proceeded along the icefoot, where the travelling was better.

See page 338.

7. On the 15th April, at 10 A.M., I found the iron on both runners of the 12-man sledge were broken. I therefore decided on sending it back to the ship, sending you a letter (dated April 15th, 1876) giving my reasons for so doing, and my further plans.

8. On the 16th April I started with the 8-man sledge, victualled for 42 days, and accompanied by Sub-Lt. Conybeare, with the 12-man sledge which carried the depôt, I proceeded to a place where a few small hillocks seemed to offer us a chance for leaving it. On arrival there, having given Sub.-Lt. Conybeare the necessary instructions, I continued my journey.

9. The journey for the next few days lay along the foot of the cliffs, the travelling depending on the icefoot. On the 18th April I saw two small glaciers in two ravines on

the south shore, one of which appeared to reach within $\frac{3}{4}$-mile of the sea, the other was further back.

10. On the 19th April I observed a larger glacier bearing S.W. (true), and I also saw that the Sound appeared to have a termination at no great distance to the westward. The following day at noon, having arrived opposite to a remarkable hill (Bulley's Lump), I halted and tried to ascend it, but was unable to do so. On return to the tent at 8 P.M., I found Thos. Simmonds had gone after some musk oxen (of which I could count 11) that were on the south shore. He was unable to shoot any of them.

11. On the 20th April I took the sledge to Record Point, and walked up Beatrix Bay, and on the 21st I went up Ella Bay, accompanied by Wm. Waller, and ascended a ridge 1,200 feet high. From this position I saw the glacier which I observed on the 19th, which was up the valley in which I was, and appeared to reach within about 8 or 10 miles of the head of Ella Bay. I observed a strong yellow blink in the S.W., but had a very limited view as the hills around me were of great height.

12. On the evening of the 23rd April I took the sledge up Beatrix Bay, and after spending one day in a fruitless attempt to climb a hill, I managed to get to the top of Mount Neville on the 25th of April.

13. From this position, 3,800 feet above the sea level, a very good view was obtained. On the north side, I observed a range of mountains extending to a bearing of N. 72° W., where they appeared to terminate. Among these mountains I observed a large glacier bearing N. 30° W. I estimated the distance of the foot of the mountains, which I imagine to be a continuation of the United States Range, at 15 or 20 miles. Between the bearings of N. 72° W. and S. 72° W. there was nothing visible to a greater distance than about 25 or 30 miles, it being all of the same description as the land between us and the United States Range, and nothing of greater altitude than 2,000 feet. To the southward of this land the hills gradually attained a greater height, and some of them being over 5,000 feet, were visible to a great distance, probably as much as 70 miles. The weather, which was rather misty at first, cleared up well before I left the top. The same yellow blink was observed to the S.W.

14. With regard to the probabilities of there being any sea in this direction, I think that, considering the height to which I ascended, it is somewhat remarkable that no single high hill or mountain was visible at any great distance to the westward. At the same time it seems that the great distance to which land was visible to the S.W. would make it impossible for the coast line (if such there should be) to have any direction to the southward of S.W.

15. On the 27th April I commenced my return journey, which was pleasanter than the outward, the weather being warmer, and arrived on board on the 2nd May.

16. In consequence of my absence from the ship being so much shortened, I was forced to leave a large amount of provisions behind. I left a depôt at Depôt Point consisting of 84 rations, with the exception of the spirits.

This depôt is on a sloping and very rocky point on the north shore. East end of Bulley's Lump bears 273°·5 (magnetic). I left a depôt of 196 rations at Hillock Point. The hillocks are easily seen whilst travelling to the west, and are about 7 miles from Keppel Head. With this depôt I also left the spirits for the depôt at Depôt Point, substituting rum for some of the spirits of wine. In accordance with your verbal instructions I left a depôt in Sun Bay, adding 84 rations to 48 already left there by Sub-Lieut. Conybeare.

17. The inlet originally called Lady Franklin Strait may be described as a deep sound or fiord, which extends for a distance of 65 miles into Grinnell Land. It is 9 miles broad at the mouth, and at a distance of 20 miles from Distant Cape it separates into two arms. Conybeare Bay, the most northerly of the two, does not seem to extend more than 10 miles to the west of Keppel Head; it has not, however, been thoroughly explored. The southern arm is between 4 and 5 miles broad at the mouth, and 40 miles long, trending to the S.W., till at Record Point it divides into the two small bays in which the sound terminates. For the whole of its length it is surrounded by steep precipitous cliffs, which at the further end are very high, being in one place over 3,000 ft. sheer. A considerable quantity of the heavy polar ice is met with till within a few miles of the bay head. The remainder of the ice is of a small lumpy description, there being few young floes.

18. In a small cairn at Record Point I deposited a notice, written on one of the printed forms of the expedition, stating that I had discovered the end of the straits. *Not printed.* With each depôt I also left a list of its contents.

19. The temperature after you left us (April 14) was low, usually below −30° at night. On the 24th, however, the temperature rose, and since that date the travelling

was much more comfortable. The wind has never been enough to cause us much inconnenience, or any delay.

20. The health of my party since parting with Sub-Lieut. Conybeare has been excellent, the only case being one of snow-blindness. Previous to April 15th John Cropp got his foot frostbitten, and Sub-Lieut. Conybeare was obliged to have him carried back to the ship.

21. The sledges, with the recent alterations, seem quite equal to their work. Of the two, I much prefer the 8-man for extended journeys, we found it easier to drag and handier. The break-down of the 12-man sledge is due, I think, to the use of iron of an inferior quality on the runners. The tents of both sizes are quite large enough, but the robes of the 12-man require lengthening. The tea at lunch is a great improvement, and after it the men all say they feel much fitter than on starting in the morning. The ½ gill of spirits is sufficient to cook it at a temperature of —30°, and we usually used to get our lunch over in an hour. I think it would be better if the allowance of stearine was changed. Parties working in the early spring are obliged to use more than their allowance; and from want of experience do not know how much they may expect to save later on in the season, even if they are destined to be absent from the ship till then. 4 ounces of stearine would not, in my opinion, be more than sufficient when the temperature is much below zero. The clothing we found to answer well, but a third pair of flannel wrappers and moccasins would form a desirable addition, as one pair would then get more chance of being dried.

22. The conduct of the men has, I am happy to state, been very satisfactory. I beg to refer you to my journal and chart for further details.

I have the honour to be,
Sir,
Your obedient Servant,
ROBERT H. ARCHER,
Lieut.

Captain H. F. Stephenson.

H.M.S. "Discovery," at Discovery Harbour.
4th May, 1876.

April 8th.

P.M. Left the ship at 12.30. I accompanied Captain with dog sledge, Mr. Miller taking charge of 12-man sledge. Proceeded up the Bellot Island icefoot, and across the Western entance, where we found the snow very soft. The heavy sledges will, probably, find great difficulty in crossing. At 7 P.M. we encamped about halfway between Sun Cape and Cape Clear, calm, b c., outside—30°; distance made good, 8 miles.

April 9th.

A.M. Outside — 29°; in tent + 19°. Started at 9, and continued our journey for an hour, when, finding the road very bad, owing to the bad icefoot, and the soft and hummocky state of the floe, we retraced our steps, the Captain having decided to try the inner route, by Discovery Harbour. We met the heavy sledges at lunch at Sun Cape, they having just succeeded in getting across the entrance. After lunch we continued our journey up the harbour. Travelling much better. After passing Cape Rest we found hard snow on the floe. Encamped about ¾ mile short of the head of the harbour.

Wind, west 2. b c. In tent — 9°.

Monday, April 10th.

A.M. Started at 9. Crossed the land, and along Sun Bay to Stony Cape. Snow very soft, travelling laborious.

Lunched at Stony Cape, where the Captain also left a note, directing Conybeare to follow us to Cape Straight.

Bearings from a floe about 200 yards from Stony Cape :—

Line on Cape at end of Conybeare Bay	7°·7
Centre Pt. of Conybeare Bay	0·8
Up small bay to left of Centre Pt.	359·6
Right Cape of Keppel Land	357·5
Right of Miller Island	353
Cape Straight—top	317
,, ,, bottom	309·8

Crossed to Cape Straight, travelling very heavy, snow up to our knees, with a weak crust on the top. Encamped at 5 P.M. at Cape Straight.

After our experiences of to-day, we do not expect the sledges before Thursday evening.

800 yards from Cape Straight :—

Line on end of Cape in Conybeare Bay	18°
Extreme of Miller Island	

Thursday, April 11th.

Kept the tent pitched in the same place. I walked with the Captain along the icefoot to the south of Cape Straight. We came to the final conclusion that Cape Straight stood on an island in the mouth of a bay, and the captain called them after Messrs. Conybeare and Miller. We found the floe harder for a short distance out, and hoped that it would continue so ; but in this we were disappointed. Lunched at 2 P.M in the tents. Temperature outside 0°.

Bearings taken on the ice between Miller Island and Keppel Head :—

Line at the head of Conybeare Bay	24°·3
Left of Miller Island	
Keppel Head	313·7
Valley in Grinnell Land (same as taken from Stony Cape)	215·5
Right of Keppel Land	16·8
Cairn on Bellot Island	156·7
Right of Miller Island (Cape Straight)	156·1

Bearings from Cape Straight :—

Keppel Head	324·3
Stony Cape	130·6
Left of Cape Clear (low)	146·0
Cairn on Bellot Island ; left Cape of Western Entrance	156·6
Extreme right of Bellot Island	162·1
Distant Cape (to right of Cairn)	164·7

Sextant angles :—

Keppel Head to Cape Baird	128°	6′	0″
Cape Baird to Distant Cape	34	39	30
Distant Cape to Sun Cape	8	30	0
Sun Cape to East Cape of Sun Bay	10	21	0
East Cape of Sun Bay to Stony Cape	16	23	0

Wednesday, April 12th.

A.M. Accompanied the Captain, with the empty dog-sledge, to a valley in Grinnell Land. It took us 4 hours to cross the Sound in the direction we took, which was slightly diagonal, and we estimated the distance to be between 6 and 7 miles. Started back at 2 P.M., the weather being so foggy that we saw very little. On arriving at the tent, found the heavy sledges had arrived.

Bearings from valley in Grinnell Land :—

Keppel Head..	63°
Left of Miller Island (top)	68
Centre ,, ,, ...	79·5
Right ,, ,, (Cape Straight) ..	110
Left tangent of Grinnell Land (a near point)	163·5
Right ,, ,, ,,	344·5

From Cape Straight :—

Cape Baird	199·0
Valley in Grinnell Land, visited to-day ..	275·5

Thermometer outside — 10°.

Thursday, April 13th.

Started at 8.50 A.M. Outside — 15°. In tent + 20°. Proceeded along Mill Island. 12-man sledge turned over, and we had to unload before we could right i We found the iron shoeing on one of the runners broken, so the Captain has come t the conclusion that I had better do the long journey with the 8-man sledge, sendin the 12-man back from the depôt. In consequence of this alteration, have received fres orders for my route (vide memo. April 13, 1876).

See page 323.

Found deep snow with rough stuff underneath, soon after leaving Miller Island, s we were unable to reach Keppel Head that evening, and encamped at about $\frac{3}{4}$ mile fro the Cape.

Bearings from camp: –

	°
Distant Cape	163·6
Cape Baird..	190·0
Valley in Grinnell Land (visited April 12) ..	247·6
Keppel Head	291·3
Right of Keppel Land	41·5
Left of Miller Island (bottom)	61·0
,, ,, ,, (top)	67·0
Centre ,, ,, ...	103·0
Right ,, ,, ...	148·6
Bellot Island Cairn	155·2

Calm, o.c. Outside — 10°. In tent + 5°. On March 6th, lunch, $1\frac{1}{4}$ hours. Rests &c., $1\frac{1}{2}$ hours. Distance travelled, 5 miles. Made good, 3 miles.

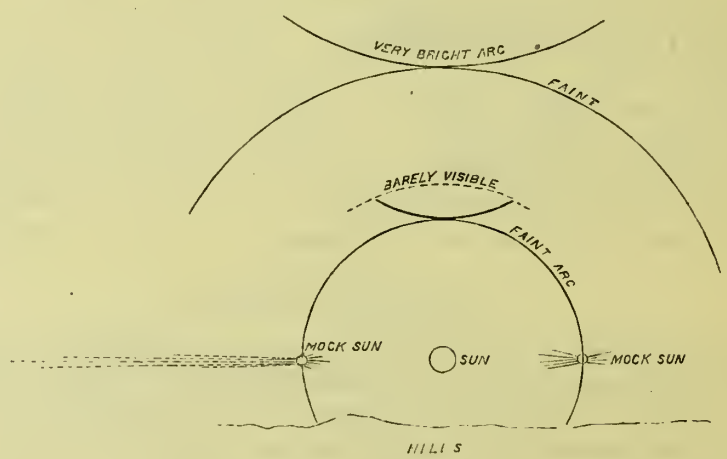
Friday, April 14th.

Calm, c.f.s. Outside — 15°. In tent + 15°.

A.M. Sights for Longitude :—

8h. 43m. 40s.	29° 25′ 10″	⊙	Art. Horizon.
44 36	28 50		I.E. — 45″.
45 34	32 0		

Started at 9 A.M. Captain gave his sledge orders to proceed to Cape Straight, and accompanied us to Keppel Head. Ice hummocky, snow deep. Arrived at Head at 11.15. Halt for lunch. Observed a remarkable Parhelion while at lunch.



The arcs were all of prismatic colours, and from the mock sun on the left of the sun, a long streak of white light extended, terminating at an angle of about 90° from the sun.

Thermometer at lunch – 15°.

12.40 P.M., Captain left us, he returning to the ship with Mr. Miller, while we continued our journey along the icefoot. Weather foggy, cannot see the opposite side of Sound. 2.35, passed a low point, which is the only point where a boat could be landed. I therefore settled with Mr. Conybeare to look in for it there on my return. Halted at 5 P.M. Weather still foggy. Temp. in tent + 10°. Outside – 12°. Hours on march $6\frac{1}{2}$. Lunch $1\frac{1}{4}$. Rests $\frac{3}{4}$ hour. Distance travelled 7 miles. Made good, 5 miles. Course 330° (mag.).

Saturday, April 15th.

A.M. Sights for Longitude :—

8h. 46m. 35s.	30° 19′ 30″	⊙	Art. Hor.
47 30·5	22 30	IE. − 15″.	
48 56	27 50		

Proceeded along the icefoot at 9.15. All hands feeling cold. Last night Cropp showed me a blister on his heel, which he says is from a gall; looks like a frost-bite; glycerine and cotton wool. Told him to walk quietly along ahead. Sledges travelling slowly. At 10 A.M., we found the 12-man sledge coming so heavily that even on a good icefoot the men could hardly move it without "facing it." On examination, I found both runners were cutting into the ice, the shoeing on each being broken right across, and as there seemed a great chance of disabling it altogether if we continued with its present heavy load, I had the sledges hauled out on to the floe and encamped. After shifting our foot gear, we unloaded and turned the sledge up, Wm. Ward, armourer, and Samuel Bulley, stoker, then went to work to try and improve it, but were unable to do much, having only the pemmican chopper to work with. I therefore decided to send Sub.-Lieut. Conybeare back with the wounded sledge, and continue my journey with the 8-man sledge. I, therefore, furnished him with the necessary instructions, and gave him a letter for the Captain, giving my plan for future operations. *See page* 338.

Mer. Alt. at camp ⊙ 36° 46′ 20.″ IE. − 15″. Hours on march, 1. Dist. made good, 1½ miles. Temp. in tent, 0°. Outside, − 22°. Calm.

Sunday, April 16th.

Temp. outside, − 29°. Tent + 30°. A fine day, but rather cold, and a little clearer. Slept in 8-man tent for first time, and overslept myself, and we did not start till after 10 A.M. I have fixed on a place for the depôt, about a mile from our camp, among some small hillocks which stand at the foot of the cliffs. Mr. Conybeare and his party accompanied us to the next point, which I thought might be better for the depôt, but as I did not like it so well, they returned to the hillocks at 1.25. Stopped at 2 P.M. for lunch. Temp. − 27°. Calm, b.c.f. Got our lunch cooked in ¾ of an hour. Started at 2.45 along the upper ice-foot. Hare tracks very numerous. Saw two hares, shot one. Camped at 6.45. All very cold the moment the sun goes out of sight, especially in the feet. Sound seems to me rather like a bay. Temp. − 37°. Calm, b.c. Tent − 10°. Hours on march, 7. Lunch, ¾. Looking for site for depôt, ½ hour. Course, 330° (mag.) Distance travelled, 7 m. Made good, 5 m.

Monday, April 17th.

Last night as I felt a slight attack of diarrhœa, took an astringent powder. Felt cold during the night, so did the cook; the end billets are trying in this weather. Outside, − 34°. Tent − 5° to + 10°. Breakfasted in bed. Started at 9.15. Proceeded along ice-foot, sometimes the upper, at other times the lower. Noon, lunch.

Mer. Alt. 38° 18′ 10″ I.E. + 25″. Temp. − 23°.

Proceeded at 1 P.M. Sun powerful.

2.30. Passed a large cleft in the cliffs. Carried away the span of the drag-ropes, and the foremost sledge batten.

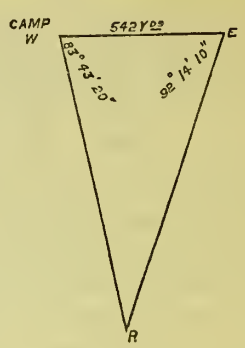
3h. 22m. 47s.	32° 35′ 0″	⊙	I.E. + 25″
,, 24 59	,, 31 30		
,, 26 10	,, 28 0		

Was too cold for sights this morning, so I took them in the afternoon, during which we have been chiefly on the floe. Sledge comes heavily. Thermometer went down 6° the moment the sun set. Encamped ¼ mile from land at 6 P.M.

Sextant Angles :—

Bulley's Lump to Girard Point	6° 29′ 0″
East tangt. Grant Land to East tangt. Grinnell Land ..	17 57 0
Bulley's Lump to Ridge Gorge	64 50 0
Ridge Gorge to East Base	83 43 28
East Base to East tangt. Grinnell Land	13 13 40

Observations to find Width of Sound.



Compass bearings :—

	°
Girard Point	336·8
Bulley's Lump	330·5
Ridge Gorge	279·3
East tangt. Grinnell Land	168·2
„ Grant Land	156·0

Hours on march, 7. Lunch, 1. Rests, 1. Course, 330°. Distance travelled, 9 m. Made good, 7 m.

Tuesday, April 18th.

For true bearing of Bulley's Lump : ⊙| Bulley's Lump. 8h. 39m. 20s. 103° 39′ 20″. Temp. outside, – 30°. Tent, + 5° to + 15°. Calm b.c. Start 9 A.M. Proceed along ice-foot, travelling good. 11.45. Passed a large gorge, the first on this side. Halted for lunch at 12.10 almost opposite a small twin glacier. Appears to reach within ½ or ¾ miles of sea.

Mer. Alt. ⊙ 39° 5′ 20″. IE. + 1′. Temp. – 20°.

	°
Saggers' Glacier	285·4
Next Gorge	310·8
Bulley's Lump	326·0
W. tangt. Grant Land ..	330·9
E. „ „ ..	157·1
E. „ Grinnell Land	166·9
Ridge Gorge	228·5

Came on at 1.30, sticking to ice-foot as much as possible. Road not quite so good as in forenoon. Appears to be another glacier in the next gorge to Sagger's Glacier. Took P.M. sights.

	4h.	27m.	22s.	29°	33′	50″	4h. 32m. 34s.	° 358·7	⊙
	„	28	54	„	26	40	„ 34 51	359·5	
⊙	„	30	12	„	21	40		Compass.	

I.E. + 1′ 0″. Sights were taken at a small point, also these bearings :—

	°
East tangt. Grant Land ..	164·0
West „ „ ..	342·6
Bulley's Lump	328·9

Halted at 6.45. Temp. outside – 31°. Tent – 10°. Hours on march, 8½. Lunch, 1½. Rests, 1h. Course, 330°. Dist. travelled, 10m. Made good, 8m. Have made a good run to-day, and are probably 25 miles or more from Keppel Head. Cliffs are too steep, and Sound looks too short, to land the small depôt I proposed.

E. tangt. Grant Land to E. tangt. Grinnell Land ..	8°	35′	20″
E. tangt. Grinnell Land to mark on Grinnell Land ..	82	53	20
Mark on Grinnell Land to Bulley's Lump	92	37	50

Compass Bearings :—

E. tangt. Grant Land (a very near pt.) ..	164·5
„ Grinnell Land..	176·5
Saggers' Glacier Gorge	213·8
Next „ „	263·4
Bulley's Lump	331·0
„ „ Right Extreme	338·2
Record Point	344·0
West tangt. Grant Land	349·0

Wednesday, April 19th.

True Bearing Bulley's Lump. ⊙| Bulley's Lump, 9h. 31m. 58s. 84° 16′ 50″

Overslept myself. Start at 9.45. Light snow. Temp., –24°. In tent + 8° to + 20°. Road is rather bad to-day. 12·35. Halt for lunch.

E. meridian Alts. :—

12h. 48m. 45s.	39° 44′ 10″	IE. + 25 .	
„ 50 44	„ 43 10	⊙	
„ 52 14	„ 43 10	Temp. — 19°	
„ 53 57	„ 42 20		
„ 54 37	„ 41 40		

	°
E. tangt. Grant Land (a near point)	165·2
„ Grinnell Land	170·6
Saggers' Glacier Gorge	198
Second „ „	224·8
East End of Bulley's Lump	322·3
West „ „ „	333·0
Record Point	337·8
W. tangent Grant Land	344·3

1.45. Continued the journey. Bulley's Lump is a hill on south shore, and not an island. I can distinguish another and larger glacier to S.W. North shore is trending slowly more to the north. Halt at 7 P.M. Travelling has been bad. Hours on march, 7. Rest, 1. Lunch, 1. Course, 330°. Dist. travelled, 6 m. Made good, 4 m. Temp., —28°.

Bearings from a Heavy Floe 800 Yds. from Tent :—

Tent (pitched at Point)	108°
E. tangt. to Grant Land	171·5
„ „ Grinnell Land	176·7
Saggers' Glacier	183·8
Next „	188·4
East End Bulley's Lump	293·6
West „ „ „	330·2
Bay Head Glacier	331.2
Record Pt.	344·6
Girard Pt.	355·0
Gulley	13·5

Thursday, April 20th.

A.M. Sights :—

9h. 51m. 6s.	37° 5′ 20″	⊙
„ 53 13	„ 12 0	IE + 35″
„ 55 41	„ 19 20	Outside — 20.° Tent + 12.°

Overslept myself again. Start at 10 A.M. Travelling bad. Halted at noon, and I determined after lunch to try and ascend Bulley's Lump.. Camped. Mer. Alt., 40° 40′ 20″. IE + 35″, Left the tent at 2 P.M. accompanied by Wm. Waller. Arrived at opposite side at 3·10. Distance about 2 m. Found the hill inaccessible, so walked along the shore to the west. Took 1¼ hours to walk to Waller Point. Arrived at tent at 8 P.M.

Bearings from Bulley's Lump :—

1st Position.	°	2nd Position.	°
Tent	86.7	Tent	85·5
Camp of April 19 (?)	121·0	Camp of April 19 (?)	119·5
E. tangt. Grant Land	154·6	E. tangt. Grant Land	159·1
„ Grinnell Land ..	160·9	„ Grinnell Land ..	163·7
		Waller Pt.	353·0

1st position is about ¼ mile W.S.W. true of 2nd position.

Compass bearings :—

From Waller Point.	°	From Camp.	°
East end Bulley's Lump ..	176·6	Edge of Black Cliffs	56·5
East tangt. Grinnell Land ..	171·8	Bulley's Lump, 1st Posn. ..	259·0
„ „ Grant Land ..	160.8	„ „ 2nd „ ..	257·3
Depôt Point	128·3	„ „ Top (about) ..	297·0
Line of Simmond's Gulley ..	85·2	Head Glacier	327·4
Girard Point	6·4	Record Point	332·0
Record Point	353·8	Girard „	344·4
		Murray Island ←	21·1
		„ „	36·0

Sun's following limb disappeared behind the edge of Black Cliffs at	8h. 57m. 35s.
Black Cliffs to E. tangt. Grant Land	116° 54′ 20″
E. tangt. Grant Land to Bulley's Lump (1st Posn.) ..	91 15 30
Bulley's Lump (1st Posn.) to Bayhead Glacier	61 17 20
,, ,, ,, to Record Point	67 48 40
,, ,, ,, to Girard ,, ...	75 35 0

On arriving at tent I found Simmonds had gone off after some musk oxen. Counted 11 of them a little to east of Bulley's Lump. Made preparations to follow him with sledge. Observed the musk oxen to ascend hill rapidly; presently Simmonds emerges from amongst the ice foot, he cannot follow oxen, so I see him start back. He did not arrive back till midnight, and says that having explored the bay, which I call Simmonds Bay, and discovered the island in it, he went to look for game, but not seeing any he returned to tent, when Girard pointed out the musk oxen. They would not allow him to approach within range, but escaped up a place so steep that he was unable to follow. By the time we had finished dinner and had got to bed it was 2 A.M.; all those who had been walking feel tired. Wind variable, b. c. Temp. at 2 P.M. — 15°. 4 P.M. — 18°. Hours on march, 2. Distance travelled, 2 miles. Made good, 1½ miles. Walking, 6 hours.

Friday, April 21st.

In consequence of the musk ox excitement of last evening, I did not awake till after 11 o'clock. This fact, combined with a painful sensation I felt in my right eye yesterday, induced me to put off starting till the evening, and keep my eye dark till then.

5h. 18m. 3s.	28° 14′ 50″	P.M. sights.
,, 20 40	,, 1 50	
,, 24 55	,, 47 50	Temp. — 20°.
,, 26 1	,, 39 10	

Had the hare cooked for breakfast this evening; it was a pleasant change from the everlasting pemmican. My moccasins, lying on the sledge, were thawed by the sun. Started at 8 P.M. Calm, b. c. Temp. — 22°. Tent during day, + 10° to + 28°. Proceeded towards Bulley's Lump, leaving all the provisions in depôt at this camp, except one week. Keeping up on the south side to avoid the hummocks and deep snow. 11.15 P.M. Halted for lunch; only 2½ inches of snow on ice; travelling good. Sledge feels very light to the men. Temp. — 34°. Very cold, too much so for night work.

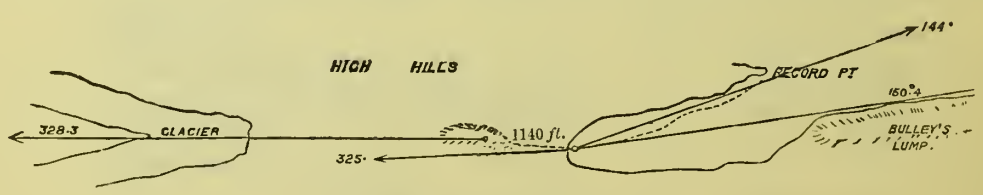
Saturday, April 22nd.

Continued the journey at 12.20 A.M. Arrived at Record Point at 1.30. Encamped. Hours on march, 4½. Lunch, 1. Dist. travelled, 10 miles, made good, 9 miles; course, 332°. Walked on with Waller at 2 P.M. up the Western Bay; called it Beatrix Bay. Very good walking, but was surprised to find it took me 1¼ hours to get to Girard Point; must be over 3 miles, as I have walked fast; find the Bay turns to the right a little; walked on for half an hour; the end is about half a mile further when I turned back. Reached the tent at 6 A.M. Cliffs very high. Went to bed.

4h. 44m. 3s.	31° 28′ 40″	P.M. sights. Art. Hor.
,, 45 20	,, 23 30	☉ I.E. + 40″
,, 46 38	,, 18 10	

True bearing of a ravine on S. side ☉ 4h. 55m. 14s. 89° 34′.

6.40 P.M. Left the tent to walk up Ella Bay. 10.15. Arrived at head of bay. Am much surprised to have taken so long. Dist. must be 7 miles. Ascended a hill which seemed low, but found it 1,140ft. Hills on each side of great elevation.



Steep Cliffs backed by Hills.

From top of the ridge Waller Pt. bore 149°·8. Saw a great many tracks of hares, and saw also one of those animals and a ptarmigan, the first bird of the season. Saw

the glacier at a dist. of about 8 miles. A little further in it divides into two branches, which run back out of sight. A very strong yellow blink to the S.W. (true), most distant hill seen about 20 miles off. View very limited. Started back at 12.50 A.M., arriving at tent at 6 A.M. on April 23rd; very tired. Thermo. −20.°

Sunday, April 23rd.

Was called up at 1.30 P.M. by Girard, who has over-eaten himself; the men have done a good deal of sleep, having only had a small cairn to build while I was away last night; he seems to have indigestion. Gave two pills.

Double Alt. P.M. sights:—

2h.	26m.	8s.	40°	4′	10″	5h.	6m.	31s.	30° 31′ 10″
„	27	40	„	0	0	„	8	41	„ 21 10
„	28	49	39	57	50	„	10	12	„ 14 20

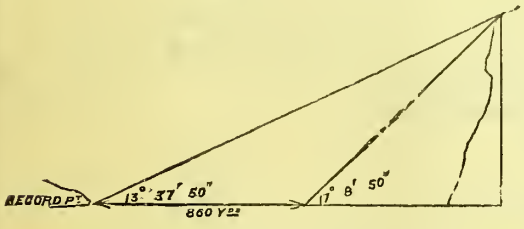
I.E. + 40″. Sun's LL. Art. Hor.

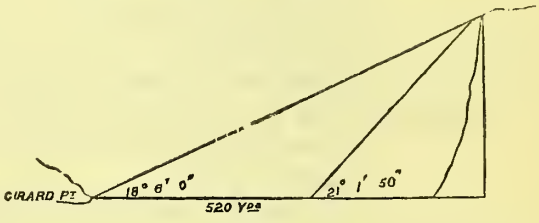
Ravine on south side (true bearings, see yesterday)	269°·7 compass.
Waller Point	172·7
East tangt., Grant Land	158·8
Depôt Point	144·0
Gorge in Black Cliffs on north side	67·0
Low Point this side of Simmonds Bay	141·4

Sextant Angles:—

Ravine on south side to Waller Point..	96°	1′	0″
Waller Point to east tangt. of Grant Land	16	11	0
East tangt. Grant Land to Depôt Point	9	28	30
Depôt Point to Low Point, this side Simmonds Bay ..	6	37	20

Started at 7.45 p.m. going up Beatrix Bay. Travelling very good. Intend to make a short day and night in the course of the next 12 or 15 hours. Cliffs being very high, I took the following observations for determining the height:—The first is from Record





Point, on a bearing 55° mag. The second from Girard Point, bearing 305° mag. 11h. 15m. Halted, camped, lunched, and went to bed. Angle of elevation of same cliff, as taken from Point Girard, 11° 6′ 30″. Thermo.—32°. In tent,—10°. Night very cold for travelling. Hours on march, 3½. Dist. travelled, 7 miles, made good, 6 miles.

Monday, April 24th.

Spent the whole day in trying to get up a hill at the head of this bay, but was unsuccessful. Felt tired and seedy.

6h.	11m.	5s.	26°	29′	40″	P.M. sights ⊙ IE + 35″
„	12	20	„	23	0	Temp. at noon, −12° Tent, +20°
„	13	42	„	17	0	„ 1·30, −5° „ +29°

Gave Girard a dose of castor oil.

Tuesday, April 25th.

Started at 9.15 A.M. to walk up a hill. Succeeded, after a heavy climb of 7 hours duration, 5 of which were spent in a short ravine, in attaining the height of 3,800 ft. We are on the top of a cliff which goes down into the valley beneath. This valley, starting from the head of Beatrix Bay, much resembles the Bellows, runs a long way back, and appears to emerge on a plain which extends to a range of mountains at a distance of 20 miles or thereabouts. These mountains appear to be a continuation of the United States range, and I can see them from a bearing of 100° to that of 36°·5. In amongst them is a glacier—left side of glacier, 76°·4; right, 80°·5—which runs back apparently a very considerable distance. Between me and the mountain there seems to be no land of more than 2,000 ft., and most of it probably less. The same state of things extends to a bearing of about 360°, where the land gradually rises in a lot of high peaks probably over four or five thousand feet, and some of them very distant, I dare

say 70 or 80 miles. Weather cleared up while I have been up here; it was a little misty at first. From the bearing of 100° a higher ridge behind intercepted my view. Started back 5·25; tent at 8 P.M. Temperature, outside, 10 A.M., −15°; 2 P.M., −5°; 4 P.M., −8°; 8 P.M., −12°. Temperature, in tent, 10 A.M., +20°; 2 P.M., +37°.

Bearings :—

Line of valley (about)	46°
Hill I ascended	71°
Point Girard..	212°·8
Cliff where I measured the height ..	247°

Wednesday, April 26th.

Started at 9·35. Reached Girard Point at 10·25. I went on ahead of sledge, directing it to proceed towards the depôt, keeping along north shore. I crossed over to Record Point, where I deposited the following notice in a small cairn :—

"This cairn was built by a party from H.M.S. 'Discovery,' who, having discovered that Lady Franklin Sound is a deep bay or fiord, are starting on their return to the ship to-day.

"ROBERT H. ARCHER,
"*April* 26, 1876. "*Lieut.*"

It was written on one of the printed records of the expedition, and placed in a cylinder. Record Point was reached at noon, and at 12·55 I rejoined sledge at north shore, they having just stopped for lunch. 2 P.M. Proceeded, the travelling getting worse towards the depôt, but sledge very light. South side is certainly the best way up.

Bearings from Girard Point :—

Record Point	188°·2
Cleft in opposite side	314
Bay Head	29·8
Along north shore towards Simmonds Bay ..	170

Bearings from Low Point W. side of Simmonds Bay :—

First position on Bulley's Lump	230·6
Record Point	324·3
W. tangent towards Point Girard	337·3
Outer extreme, Murray Island	114
Depôt Point	164·6
East tangent, Grant Land	172·2

Halted at 5.10 P.M. at depôt, which we found all right. As I shall not be able to carry all my provisions back to ship, I shall leave a depôt of 84 rations at Depôt Point; by this means I shall be able to travel lighter up to the Hillock Depôt, where I shall fill up the sledge to nearly 42 days. Leaving the rest in depôt, I shall return to the ship.

I have left no spirits at Depôt Point, owing to being short of spirit cans.

Bearings from Depot Point :—

East end Bulley's Lump	273°·5
Record Point	333·4
West tangent, Grant Land	343·4
East " " "	184·4

Hours on march, 6. Lunch, 1½. Course, 150°. Distance travelled, 17 miles; made good, 14 miles.

Temperature in tent, +18°; outside, −6°.

6h. 46m. 11s.	24° 42′ 20″	IE+ 15″ P.M. Sights.
" 47 28	" 38 0	Sun's LL.
" 48 40	" 32 10	

Thursday, April 27th.

Started at 8.35 A.M. Found the ice-foot a good deal overflowed, so kept out on the floe; going heavy. Stopped for lunch at 11.55. Mer. Alt., 45° 13′ 20″. IE+10″.

Compass Bearings at lunch :—

East tangent, Grant Land	155°·8
,, ,, Grinnell Land	168·6
Gorge of Saggers' Glacier	185·0
,, next ,, ...	202·2
Ridge of Bulley's Lump	316·0
Waller Point	331·5
Record Point	336·4
Girard Point	345·4
Low Cape on far side, Simmonds Bay	350·3
West tangent, Grant Land	352·5

12.45. Proceeded. 3.55. Passed camp of April 18.

4h. 41m. 9s.	34° 20′ 30″	P.M. sights. Sun's LL.
,, 42 15	,, 15 30	Temp. + 2° I.E. + 10″
,, 43 17	,, 10 50	
,, 44 40	,, 5 30	

Halt at 6.30. On march, 8½h. Lunch, 50 minutes. Rests, 40 minutes. Course, 150°. Distance travelled, 11 miles. Made good, 9 miles.

E. tangt. Grant Land	156·8
,, Grinnell Land	164·8
Saggers' Glacier..	243·5
Other Glacier	300·9
Bulley's Lump	336·6
W. tangt. Grant Land	339·6

Bulley's Lump to W. tangt. Grant Land	5° 43′ 40″
,, ,, 2nd Glacier	32 27 20
,, ,, Saggers' Glacier	88 22 30
Saggers' Glacier to E. tangt. Grinnell Land	71 3 10
E. tangt. Grant Land to E. tangt. Grinnell Land ..	12 3 30

Temperature : Tent + 10° ; outside — 5°.

Ice-foot much overflowed by recent spring tides, or we should have got on better. We have used 3 days' cocoa in 2 days in consequence of it being packed in 12-man packets.

Friday, April 28th.

Start at 9 A.M. Temp. : in tent, + 20° to + 32° ; outside, 0°. Warm weather makes travelling much pleasanter. Foot-gear dries in sun. Calm. o.c.m.s. 11.15. Passed luncheon-place of April 15. 12.15. Lunch ; weather c.f.s. ; no sights. 1.10. Proceeded ; temp. + 3°. 3.30. Passed the large ravine which we passed at 2.30 April 17 ; temp. + 5°. 4.30. Passed luncheon-place April 17. 6.10 Halted at camp of April 16 ; weather a little clearer. Hours on march, 7½. Lunch, 50 minutes. Rests, 40 minutes. Course, 150°. Dist. travelled, 13 miles; made good, 11 miles. Temp.: outside, + 3° ; tent, + 25.°

Bulley's Lump to Ridge Gorge	25° 6′ 0″
,, ,, Sloping Gorge	95 18 0
Sloping Gorge to E. tangt., Grinnell land ..	64 50 0

Compass Bearings :—

Bulley's Lump	337°·5
Ridge Gorge	311·8
Sloping Gorge	241·2

Saturday, April 29th.

Temp. : tent, + 30° to + 40° ; outside, — 2°.

7h. 49m. 26s.	35° 56′ 10″	A.M. Sights. Sun's LL.
,, 50 52	36 2 0	I.E. + 10″.
,, 51 50	,, 5 30	Calm. b.c.

E. tangt., Grinnell Land, to |⊙ .. 7h. 55m. 52s. 45° 36′ 30″

Kept along upper ice-foot. Shot one hare in same place as the last. 10.40. Passed luncheon place 16th April. Arrived at depôt at noon. Lunch. Secured the depôt as follows, taking remainder of provisions on sledge.

84 rations of dry provisions in depôt tins.
112 " " " bread bags.

196 total.

Also 50 pints of rum and 20 pints of spirits of wine. 35 pints of the rum are for drinking, 10½ of which belong to the depôt at Depôt Point. 15 pints of rum and 20 pints of spirits of wine for burning, 10½ pints of which belong to the depôt at Depôt Point. A notice was placed with the depôt giving the above particulars. Weather cloudy.

3 P.M. Proceeded from Hillock Depôt. 4 P.M. Passed camp April 15th. 5 P.M. Passed camp April 14th. 7 P.M. Encamped at Boat Point. On march, 7h. Lunch and Depôt, 3h. Rests, ¾h. Course, 150°. Dist. travelled, 9m.; made good, 8m. Temp., −9°; tent, + 7°. Ice-foot still rather wet in many places.

Bearings taken from a hummock 200 yards from Point :—

E. tangt., Grant Land ..	151°·1	Valley Visited (east)	215°·8
Outer Sun Cape (low).. ..	157·6	Sloping Gorge	315·0
Distant Cape	167·6	Bulley's Lump..	343·2
Cape Baird	192·5	W. tangt., Grant Land ..	344·8
Valley visited (west)	233·3	Bellot Cairn	149·0

Sextant Angles :—

E. tangt., Grant Land, to Bellot Cairn	5°	25′	0″
" " " Sun Cape (low)	4	27	0
" " " Distant Cape	12	52	0
" " " Cape Baird	35	4	0
" " " Valley visited April 12th (east)	65	7	30
Bulley's Lump to " " " "	123	35	0
" " " " " (west)	109	44	0
" " Sloping Gorge	28	26	0
" " W. tangt., Grant Land ..	1	47	0

As I was not sure which was the valley visited April 12th, I took two of them. Find I never took any sights for determining alt. of Bulley's Lump, so I take them now. Alt. of Bulley's Lump off and on the arc (mean), 31′ 00″.

Sunday, April 30th.

Had hare for breakfast. Temp. in tent, + 24° to + 33°; outside, − 0°·5. Calm o.c.f.s. Started at 9.5. Reached Keppel Hd. at 10.50.
Compass Bearings 150 yards east of Hd.

N. tangt. into Dougall Bay ..	57°·6	Cape Straight (low)	141°·0
Miller Island ← (high) ..	68·5	Cape Clear	143·5
" " centre C. ..	118·5	Valley visited April 12th (E.)	225·4
Cape Straight (high)	138·0	" " " (W.)	243·7

Weather rather foggy. 11.15. Passed camp of April 13th. 12.20. Lunch; thermo. + 5°. 1.20. Proceeded; found tracks make it much easier travelling. Rather annoyed by the dulness of day, which is trying to the eyes. At 2.40 took a round of bearings.

West tangt. Miller Island } Small Cape Clear }	.. ..	28°·0
Centre Miller Island	.. ..	170·9
Valley visited April 12, E.	.. ..	239·2
" " " W.	.. ..	257·9
Keppel Head (low)	.. ..	304·7
" " (high)	.. ..	311·2
1st point on Keppel Land	.. ..	348·9
2nd " "	.. ..	21·4

3.0 P.M. Arrived on the ice-foot, which is much worse than on outward journey. 6.15. Arrived Cape Straight. Encamped on March 7th. Lunch 1 h. Rests 1 h. Course, 135°. Dist. travelled, 7 miles; made good, 6 miles. Saggers has a pain in right eye. Give wine opium.

Monday, May 1st.

Temp. + 3°. Tent + 30° to + 40°. Calm c.f.s. Started at 8.45. Found heavy travelling. 12.40. Arrived at Stony Cape; found Conybeare's notice. Proceeded to Depôt, where I arrived at 1 P.M. Lunch. Added 84 rations to Conybeare's 48 already

8
7
6
5
4
3
2
1
0
40
30
20
10
81°
UNITED STATES MOUNTAINS
Glacier
High Table Land Intersected by Ravines 1000 to 2000 ft
High Mountainous Land
Mt Neville 3,600 ft
Variation 103° 16' W.
Murray I.
SIMMONDS B.
Depot 8 Rations
BEATRIX BAY
Cliffs over 3000 ft
High Cliffs
Waller Pt
Record Pt
Bailey's Lump
ELLA BAY
ARCHER FIORD
Ridge Gorge
Saggers Glacier
Glacier
Sloping Gorge
HILLOCK DEPOT
132 Rations
Ap. 14th
Ap. 15th
Ap. 16th & 28th
Ap. 17th
Ap. 13th
Ap. 29th
Ap. 17th & 30th
Ap. 10th
Ap. 19th
Ap. 20th & 26th
Ap. 18th
27th
Ap. 24th & 25th
Ap. 22nd
Ap. 1st May
Ap. 7th
CONYBEARE BAY
MILLER Ie
C. Straight
Heppel's Head
Stony C.
C. Clear
SUN BAY
BELLOT HARBOUR
Discovery
Sun Cape
C. Murchison
Cairn
Distant C.
Var. 101° 30' W.
C. Baird
C. Lieber
KENNEDY CHANNEL

Daugerfield Lith. 22 Bedford St. Covent Garden

there, making a total of 132 rations; short in spirits of wine, as the can would not hold it all. Depôt is on the low rocky point nearest to Stony Cape. 3 P.M. Proceeded. 4.0. Reached the land and found very fair going in the tracks. 5.30. Reached harbour. 7.30. Encamped at Black Nob Cape. Saggers' eye still bad, more wine of opium. Wind E. 2. Thermo. 0°. Tent + 16°. On march, 7½ h. Lunch and depôt, 2 h. Rests, 1¼ h. Course, 130°. Dist. travelled, 8½ miles; made good, 6 miles.

Tuesday, May 2nd.

Tent + 30° to + 38°. Outside—10°. Calm b.c. Start at 8.35. Stopped for lunch at 12.25. Saw two white birds fly by overhead, probably ptarmigan. Temp.—7°. 1.20. Proceeded. Reached Bellot Island ice-foot at 2.50, and arrived on board "Discovery" at 5.0 P.M. Saggers' eye been well all day. All rest in excellent health. On march 8½ h. Lunch, 1h. Course, 350°. Dist. travelled, 12 miles; made good, 9 miles.

TRAVELLING ABSTRACT.

	Days.	Hours.
Travelling out	12½	89
„ home	7	52
Halted for depôt work or exploring..	4½	
Total absent from ship	24	
	Travelled.	Made good.
Distance on outward journey	87 miles	67 miles
„ homeward journey	86 „	63 „

Chronometer (Dent, 27,532) was fast on:—

	m.	s.
Discovery time, April 7th, 1876	0	31·9
„ „ May 2nd, 1876	1	5·0
Rate in the interval .. gaining	1·32	

RESULTS OF ASTRONOMICAL OBSERVATIONS.

Date.	Latitude.	Longitude.	True Bearings.	Remarks.
		W. of Discovery.		
April 14		1° 37′ 45″		
„ 15	81° 27′ 14″	1 55 30		
„ 17	81 23 5	2 54 0		
			Bulley's Lump.	
„ 18	81 20 16	3 43 15	235° 52′·5	
			Bulley's Lump.	
„ 19	81 15 57		221° 49′·7	
			Black Cliffs.	
„ 20	81 14 39	4 0 0	310° 46′	Lat. of Depôt Camp.
21		4 48 0		Depôt Camp, bad sight.
			Ravine.	
„ 22		4 55 0	161° 32′·3	Record Point.
„ 23	81 13* 0	4 58 15		„ „
„ 24		5 38 0		Head of Beatrix B.
„ 26		4 16 15		Depôt Camp.
„ 27	81 15 18	3 29 15		
			E. tangent to Grinnell Land.	
„ 29		2 24 15	71° 25′·1	Camp of 16th.

Variation at Record Point, 108°.27′ W.

* Latitude is by a double altitude, and is neglected, as it is not in accordance with the bearings.

15*th April*, 1876,

North Side of Lady Franklin Sound.

SIR,

In consequence of the bad state of the 12-man sledge, I am of the opinion that it is unadvisable to allow it to proceed any farther with its present heavy load.

I think that it is quite fit to return to the ship now, if not too heavily laden, and I am afraid that if we take it any further, we shall very likely disable it altogether, which will probably necessitate the return of the whole party.

I have, therefore, directed Sub-Lieut. Conybeare to return to the ship with the 12-man sledge victualled for 10 days; he will be able to give you any further particulars you may require, especially with regard to the state of the sledge.

See page 322.

I shall, therefore, be left here with the 8-man sledge, victualled for 78 days, with which I shall push on as far as possible, returning to the ship by the 10th June, as directed by your original Memo. (7th April, 1876).

For this purpose, and to travel without having to run my provisions out to the last day, I shall lay out a small depôt two days ahead of my present position.

Leave main depôt, victualled for 42 days	16th April.
Make a small depôt on	18th ,,
Reach main depôt on	20th ,,
Re-victual and leave for small depôt	21st ,,
Arrive at small depôt	23rd ,,
Proceed with 42 days' provisions, leaving about 5 days in small depôt	24th ,,
Out 19 days till evening of	12th May.
Halt, and explore on foot on	13th ,,
Commence return journey on	14th ,,
Reach small depôt	1st June.
Reach main depôt	3rd ,,
Reach ship	10th ,,

ROBERT H. ARCHER, *Lieut.*

To

Capt. H. F. Stephenson, R.N.

EASTERN SLEDGE PARTY.—LIEUT. L. A. BEAUMONT. ORDERS TO, 20TH APRIL. ORDERS TO, FROM CAPTAIN STEPHENSON, 9TH MAY. LETTER FROM CAPTAIN STEPHENSON, ENCLOSING LIEUT. BEAUMONT'S REPORT, 20TH SEPTEMBER. REPORT OF LIEUT. BEAUMONT, 17TH AUGUST. SLEDGE JOURNAL, 6TH APRIL TO 15TH AUGUST. LIEUT. W. RAWSON, ORDERS TO, 20TH APRIL. LIEUT. BEAUMONT'S ORDERS TO, LIEUT. RAWSON, 10TH MAY. REPORT OF LIEUT. RAWSON, 16TH AUGUST. SLEDGE JOURNAL, 11TH MAY TO 25TH JUNE. DR. R. W. COPPINGER, ORDERS TO, FROM CAPTAIN STEPHENSON, 5TH APRIL. ORDERS TO, FROM CAPTAIN NARES, 20TH APRIL, 30TH APRIL, 3RD MAY. PROCEEDINGS, 12TH SEPTEMBER. SLEDGE JOURNAL, 5TH TO 15TH MAY. REPORT OF CONDITION OF NORTH GREENLAND SLEDGE PARTIES, 12TH SEPTEMBER. LIEUT. R. B. FULFORD, ORDERS TO, 7TH AND 17TH MAY. PROCEEDINGS. ORDERS FROM LIEUT. BEAUMONT, 12TH JULY. SLEDGE JOURNAL, 7TH MAY TO 15TH JULY.

20th April, 1876.

H.M.S. "ALERT," at Winter Quarters.

(Latitude 82° 27′ North, Longitude 61° 22′ West.)

Sir,

"Sir Edward Parry."
"Discovery."
"Stephenson."
"Alert."

Taking command of the crews of the sledges named in the margin, equipped and provisioned for an absence of 56 days, you will cross Robeson Channel and explore the coast of Greenland towards the north and eastward.

2. Your party, although not as strong as I would wish, admits of two sledges being advanced for the time mentioned, under the command of yourself and Lieut. Wyatt

Rawson, an officer in whom I have the fullest trust; and of the two others placing a depôt of provisions for your use when returning.

3. Dr. Coppinger, in addition to his medical duties, will take executive command of the two sledges thus employed; George W. Emmerson, Chief Boatswain's mate taking charge of the "Alert" under his orders.

4. On your arrival on the Greenland shore you are to erect a conspicuous cairn to mark the position where you wish a depôt of provisions to be left. The "Alert" is then to re-cross the Channel and return to this ship ready to carry over extra provisions; by her you are to send me as precise information as you can regarding the position of the cairn, and, if possible, mark it on a chart.

5. After Dr. Coppinger is detached from your party, about the 3rd of May, his instructions admit of his recrossing Robeson Channel, and, with the crew of the "Alert," advancing provisions from this ship to your depôt near Repulse Harbour for the support of an exploring party next year.

6. Afterwards he will carry up provisions from the Polaris Bay depôt, and ascertain a convenient route for your retreat overland to Newman Bay.

7. During your advance you are to endeavour to keep one of your sledges on the northern shores. Your best guide for doing so will be to follow the line of heavy stranded floe bergs, which border the coast, in whatever direction they may lead you.

8. Should you experience smoother or lighter ice than that in our neighbourhood, you may reasonably conclude that some protecting land exists to the northward. In such a case you should divide your party—one sledge endeavouring to reach the northern land, and the other continuing the exploration of the Greenland coast. But as you are not provided with a boat any one detached should return to the mainland before the 1st of June.

9. Should you discover any deep inlet, which in your opinion might prove to be a channel affording an easier journey to the eastward than the coast line of the Polar Sea, it is desirable that it should be explored this year.

10. On all occasions you are to consider that one or more large parties will be employed next year to follow up your discoveries, and that your present work is merely preliminary to a more extended journey.

11. At your extreme position you are to erect a conspicuous cairn and place in it a brief notice of the directions taken by our exploring parties, the position of the winter quarters of the expedition, and, to the best of your ability, fill in and deposit the skeleton chart with which you are supplied.

12. With regard to the remarks to be noted in your daily travelling journal you are to consider my General Order of the 21st July, 1875, as being still in force. Information concerning the date when the ice in the offing is first in motion is specially required. *See Page* 39.

13. Your party on returning to the "Discovery" must necessarily cross Robeson Channel after the ice has broken up. This part of the work before you will require more than usual skill and judgment; but I know of no officer in whose hands I would more willingly leave its accomplishment, having the utmost confidence that, with your great ability and forethought, your interesting journey will be successfully accomplished.

G. S. NARES, *Captain, R.N.,*
Commanding Arctic Expedition.

To
Lieut. Lewis A. Beaumont.

H.M.S. "Discovery."
May 9th, 1876.

Memo.

Should you arrive at Polaris Bay before the 15th of June you will wait the return of Lieutenant Fulford and Dr. Coppinger from Petermann Fiord, on which date they are ordered to be at Hall's Rest.

With both parties you are to return to the "Discovery" as soon as possible. The 15 and 20 ft. ice boats are hauled up on the beach. I must leave it to your discretion, and the state of the ice, whether it will be more convenient to bring both boats, or only one, back, leaving the other safely secured, and in a good position. I enclose you a list of provisions sent over which are in a bread bag directed to you: 7 days for

17 men, with the exception of pemmican, tea, biscuit, and bacon, which you will complete from the Polaris Depôt. There is also 200 lbs. of stearine sent over. I shall expect to see your party about the 20th of June.

H. F. STEPHENSON, *Captain.*

To Lieut. L. A. Beaumont, H.M.S. "Discovery."

20th September, 1876.
H.M.S. "Discovery," at Sea in Baffin's Bay.
(Lat. 73° 32′ N. Long. 58° 44′ W.)

Sir,

I have to enclose Lieutenant Lewis A. Beaumont's Report of his explorations on the North Coast of Greenland, also that of Lieutenant Rawson, who accompanied him part of the distance.

2. Lieutenant Beaumont left the "Discovery" accompanied by Dr. Richard William Coppinger, on the 6th of April, and proceeded to the "Alert," where he arrived on the 16th, all in good health and spirits.

From you he received final instructions, and left the "Alert" again on the 20th April with an 8-man sledge, accompanied by Dr. Coppinger, also commanding an 8-man sledge, and George Emmerson, Acting Chief Boatswain's Mate, with a 5-man sledge. The following day Lieutenant Rawson, with another 5-man sledge and three men joined company, and the whole party crossed over to Repulse Harbour on the Greenland Coast, arriving there the 28th of April.

George Emmerson, with the 5-man sledge having deposited a depôt, returned from thence to the "Alert," and Lieutenant Beaumont then proceeded on his journey of exploration.

3. From Drift Point, about 8 miles north of Repulse Harbour, the coast line trends to the N.E. as far as Cape Stanton, at which place the character of the coast changes from steep rocky cliffs to a low fore-shore, the land rising into rounded hills with mountains in the distance, but continues nearly in the same north-easterly direction, broken only by two bays, about four miles across and five miles deep, to Cape Bryant in Lat. 82° 23′ N.; Long. 54° 38′ W.

At Cape Bryant the continuity of the coast line is broken by three large openings; the first is the largest, about 28 miles across, the land terminating in Mount Hooker, bearing E.N.E. from Cape Bryant. This opening divides, one arm running to the southward, and the other, which is larger, to the south-eastward, and in which are four islands. Bearing N.E., from Mount Hooker, is the west extreme of Stephenson Island, and between them lies the second opening, about 16 miles wide, running to the eastward.

North of Stephenson Island lies Nares' Land (*i.e.* Cape Britannia), apparently an island, extending from the bearing N.E. from Cape Bryant, from its west extreme in probable Lat. 82° 54′ N. and Long. 48° 33′ W., it trends southward and eastward for some distance, and then turns to the east, sloping down till lost at the level of the ice.

Between Cape Britannia and Stephenson Island is the third opening running to the eastward 13 miles wide.

Off the west extreme of Cape Britannia is a small island (Beaumont Island). The termination of none of these openings was seen.

4. The large floe-bergs which fringed the coast line from Repulse Harbour, ceased seven miles to the westward of Cape Bryant, and were replaced by a ridge of heavy hummocks which stretched N.E. from this point ten or twelve miles, then turned to the northward and ran straight for Beaumont Island. All to the eastward of this boundary was smooth and level, while to the west and north lay the Polar pack.

5. Lieutenant Beaumont's furthest was in Lat. 82° 18′ N., Long. 50° 40′ W., under the land 13 miles S.W. from Mount Hooker, at which place was a glacier.

6. He experienced almost continuous thick weather with falling snow; owing to this and the impossibility of waiting for fine weather, much was left unseen.

7. On the 7th of May James Hand, A.B., first showed symptoms of scurvy. Dr. Coppinger having left a depôt parted company on the 5th of May, the party being all well at that time, and returned to Polaris Bay; Lieutenant Rawson was therefore despatched on the 11th May with three men and the sick man for Polaris Bay, arriving on the 3rd June, on which date James Hand died six hours after his arrival there.

Lieutenant R. B. Fulford and Dr. Coppinger returned to Polaris Bay from the Petermann Fiord exploration on the 7th, and the latter officer saw the body of Hand, and reported the cause of death was scurvy; and also that two other men of Lieutenant Rawson's sledge crew were suffering from the same complaint, one case being dangerous.

8. The travelling experienced on this journey was of the worst possible description as far as Cape Stanton, a road having to be cut almost the whole way from Repulse Harbour; afterwards it was somewhat better until crossing the deep openings over level old ice which was covered with deep loose snow, when they actually found it easier to crawl than to walk.

9. On the 22nd May Lieutenant Beaumont commenced his return journey, which was encompassed with extreme difficulties, increasing as he travelled homewards, owing to scurvy attacking the whole party. His letter so fully details the extraordinary difficulties he had to contend with—even *advancing* with two men suffering from scurvy over an almost impassable country for sledges, the thick weather and snow making it so disheartening, and without a parallel in former sledge journeys—that it is unnecessary for me here to recapitulate. Their safe return to Polaris Bay is due to the timely assistance rendered by Lieutenant Rawson and Dr. Coppinger in Newman Bay, 20 miles from the depôt, who had set out with the dog-sledge seven days after the party were due. Lieutenant Beaumont and two of his men were the only ones at all able to pull, and they were carrying the remaining four men on the sledge in detachments. With this timely assistance, without which I fear most of his party would have perished, in six days they all reached the depôt, but not in time to save the life of Charles W. Paul, A.B., who died on the 29th of June, 17 hours after his arrival there, and by the great care and watchfulness of Dr. Coppinger during a period of two months ensured the ultimate return of all to the ship.

10. Being aware of the large depôt at Polaris Bay of preserved meat, lime juice, and every necessary for the party sufficient to last a period of 42 days, I could not foresee such a calamity as the total collapse of so large a party of men and officers as were then on the Greenland shore, which included three lieutenants, one surgeon, twelve men, and a dog-sledge, until Lieutenant Fulford in the dog-sledge reached me with the intelligence on the 15th July, 25 days after they were due on board the ship.

11. Lieutenant Beaumont, Dr. Coppinger, and seven men, arrived safely on board on the 15th of August. These officers left the ship on the 6th of April, and were absent sledging 132 days.

The remainder of the Greenland party had previously arrived, see my letter of proceedings of 12th August, 1876. *See page 59.*

I have the honour to be, Sir,
Your obedient Servant,
H. F. STEPHENSON, *Captain.*

To
Captain G. S. Nares,
H.M. Ship "Alert."

17th August, 1876.
H.M.S. "Discovery," at Discovery Harbour.

Sir,

I have the honor to submit for your information an abstract account of my proceedings during my absence from the ship from the 6th of April to the 15th of August.

In accordance with the orders contained in your Memo. of the 5th of April, I left H.M.S. "Discovery" on the next day (April 6th), accompanied by Dr. R. W. Coppinger, with two 8-man sledges, manned as follows, and 14 days provisions for H.M.S. Alert:— *Not printed.*

The "Sir Edward Parry."

1. George W. Emmerson, Chief Boatswain's Mate, Capt. of Sledge.
2. Alexander Gray, Ice Quartermaster
3. William Jenkins, Carpenter's Mate.
4. Wilson Dobing, Gunner R.M.A.
5. Peter Craig, A.B.
6. Charles W. Paul, A.B.
7. Frank Jones, Stoker.

The "Stephenson."

1. Jeremiah Rourke, Leading Stoker, Capt. of Sledge.
2. David Taws, Ice Quartermaster.
3. George Leggett, Acting Ship's Cook.
4. James Cooper, 2nd Captain main top.
5. John Hodges, A.B.
6. Thomas Darke, Pte. R.M.L.I.
7. Benjamin Wyatt, A.B.

Although this journey does not form part of our exploring campaign it requires some brief notice in consequence of its being our first experience in sledging.

The party set out in good health and in excellent spirits, but the extreme cold, −40° to −30° Fahr., making it difficult to sleep at night, together with the unaccustomed food and hard work, soon told upon some of the less trained men, and for the two following days our progress was slow, considering the nature of the roads. George Leggett, Ship's Cook, was the worst, and for half a day had to walk by the side of the sledge, but as there was nothing more serious than over-exertion they soon began to recover their strength. Leggett's indisposition was chiefly due to his dislike of pemmican, and he, like many others, would not eat it until hunger compelled him to do so.

We had left the ship with half the allowance of bread, owing to so much having been brought back on every other occasion, but we found it insufficient in this case, and as an experiment it did not succeed; in every other respect, however, the provisions were good and sufficient in quantity.

The altered cooking stoves did not seem to make as great a difference in the cooking as they were expected to do, and had the disadvantage of not being so durable as the original pattern; the stew-pan of Dr. Coppinger's apparatus was rendered useless on the fourth day out by the melting of the solder round the centre funnel. The real difference in the time of cooking was made by the state and condition of the lamp, and one that could be easily and often fed was always the winner, and in this respect the original pattern is very deficient. In cold weather lamp trimming is the secret of successful and economical cooking.

The road with a few exceptions was a very rough one, as there seemed to be no choice but to follow the line of the high and very steep cliffs along the ice; once we tried the land foot, but after passing some inclines so steep that we had to cut a groove for the hill-side runner, we were forced to lower both sledges and crews down an ice wall 25 feet high, which caused such a delay that for the future we preferred working through the hummocks. Floes were rare and of no great size, consequently our progress was only moderate. We passed Lincoln Bay on the 11th, and arrived at Black Cape on the 14th, where we were detained one day by a gale of wind, reaching H.M.S. "Alert" on Sunday, the 16th of April, at 10 a.m.

This trial trip was of great use to us, for the sledges not being heavy enabled the men to get into the work without undue effort, and gave them time to get accustomed to the food and novelty of the life, so that we reached the "Alert" in excellent condition, and ready to begin work in earnest.

In pursuance of your orders I placed myself at Captain Nares' disposal with regard to future operations, and received from him a letter of instructions, a copy of which is herewith enclosed for your information. Acting on these orders I left the "Alert" on the evening of Thursday, 20th April, in company with Dr. Coppinger and the same party, with the following additions, and the difference in the arrangement of the crews.

See page 338

"Sir Edward Parry."

8-man Sledge.

1. Alexander Gray, I.Q.M., Capt. of Sledge.
2. William Jenkins, Car. Mate.
3. Wilson Dobing, Gr. R.M.A.
4. Peter Craig, A.B.
5. James Hand, A.B.
6. Charles W. Paul, A.B.
7. Frank Jones, Stoker.

"Stephenson."

8-man Sledge.

1. Jeremiah Rourke, Leading Stoker, Capt. of Sledge.
2. David Taws, I.Q.M.

3. George Leggett, Acting Ship's Cook.
4. James Cooper, 2nd C.M.top.
5. John Hodges, A.B.
6. Thos. Darke, Pte. R.M.L.I.
7. Benj. Wyatt, A.B.

"ALERT."

5-man Sledge.

1. George W. Emmerson, Ch.B.M. in charge.
2. George Stone, 2nd C.F.top.
3. Alfred Hindle, A.B.
4. Thomas Chalkley, A.B.

The next day we were joined at Black Cape by Lieut. Rawson with a 5-man sledge, and the following party :—

"DISCOVERY."

5-man Sledge.

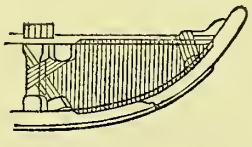
1. George Bryant, C.M.top, Capt. of Sledge.
2. Elijah Rayner, Gr. R.M.A.
3. Michael Regan, A.B.

Having completed the two advance sledges "Sir Edward Parry" and "Discovery" to 56 days provisions, and the two supporting sledges "Stephenson" and "Alert" in proportion, from the Cape Rawson Depôt, we started early on the morning of the 22nd of April for Repulse Harbour, on the Greenland Coast.

Thanks to the road made by Captain Nares' direction, the passage of the fringe of shore hummocks at Black Cape was made in safety by the heavy sledges, one 5-man sledge however broke down, and had to be sent back to the "Alert" and exchanged; this duty which Lieut. Rawson undertook was so expeditiously performed that by 4.30 a.m. of the 23rd he had caught us up, and we once more started in company.

The line between Black Cape and Repulse Harbour led us in a south-easterly direction, and was crossed by many bands of heavy hummocks, necessitating a good deal of road-making for the heavy sledges, and great care in the management of the 5-man sledges, which are hardly calculated to stand such rough work. We soon found when we were all together, that three men or even four on the 5-man sledge could not keep up with the 8-man, though actually dragging lighter weights; so to prevent delay, and to keep the party together, each 8-man sledge took a 5-man in tow, and in this manner, with the combined crews of both sledges. better progress was made.

We advanced without accident until the 26th of April, when Emmerson's sledge, which was towing astern of the "Sir Edward," got jammed and carried away the runner between the horn and the first upright; while the remainder went on, the Carpenter's Mate and myself set to work to repair damages by cutting the sailing thwart to fit the



round of the runner, and the under side of the bearer; this filling piece was then firmly lashed to the bearer and upright by hide lashings, and perfectly secured the runner from further injury in that part by transmitting the pressure to the sound bearer. It was late before this was finished, as the only tools available were my knife and a snow saw. This same sledge has lasted the whole of the season.

As we approached the Greenland Coast we passed several floes of last year's ice; they were not large, but were remarkable because they showed no sign of pressure round the edges; it seemed to indicate that from the commencement of their formation, the large and heavy old floes which surrounded them had been motionless. The old floes were high, and covered with deep soft snow, while the young floes lay low, and had much less snow on them; in fact, not only from my observations on that occasion, but later on when returning, I remarked large extents of level and unbroken ice, from which

I infer that there is less current or tide-action on this coast than on the other. The entrance to Repulse Harbour is, however, very different, being a mass of hummock ridges with small floes between them, to within 200 yards of the shore, when you come to a solid barrier of immense floebergs over which we had to find a way. This took half-a-day of road cutting and bridge-making, for such large masses have wide gaps between them, our only consolation for the delay was the thought that it would be a lasting work, and might prove useful to others. The men by this time were becoming skilful road-makers, and the officers practised engineers.

As soon as the road was made the three sledges, "Sir Edward Parry," "Discovery," and "Stephenson," were taken in and the tents pitched, while Geo. W. Emmerson, C.B.M., who was to return to the "Alert," camped on the floe outside the barrier, ready for an early start.

The Union Jack was planted on the North Greenland Coast for the first time at 1.30 a.m., Friday, 28th of April, 1876.

The tents being pitched, the provisions were re-distributed amongst the three remaining sledges, a cairn built, and a site selected for the depôt to be left for our return journey. Having written a letter to inform Captain Nares of our proceedings up to that date, I despatched Geo. W. Emmerson on his way back to the "Alert," with orders to follow our tracks as much as possible, the weather having become thick, with snow falling. At 7 p.m. we started northward, having secured in the depôt a few things of which we were not in want, to lighten as much as possible the now very heavy sledges.

Our way led us round the harbour, which is about 2½ miles broad, and at present only ½ a mile deep; but if this is the Repulse Harbour of the Americans, it is no wonder that from a distance it appeared to them a desirable place ef refuge: the background of hills gives it the appearance of a large bay, nearly 3 miles deep, with two islands in it, the remainder of the land between the hills and the sea being so flat and low as scarcely to be distinguished from the floe. No doubt it is an old harbour, and even now, for some considerable distance in, the land is covered with ice, which may have led to the mistake of the lake. A wide and deep valley on the same level runs from the N.E. corner of this dry bay. It was still snowing, and very thick, and with the snow already on the ground the sledges appeared to drag very heavily.

Towards the end of this journey we passed the furthest point reached by Lieutenant Rawson in his flying visit a few days before. He certainly was justified, so far as he saw, in making a favourable report of the travelling, but another 6 miles would have told a different tale, for it was not until the second day that our difficulties commenced. Early in the journey (I avoid the use of the word day, as we were then, and generally did, travel by night) we came to a point covered so deeply with drift snow that it almost rose to the level of the huge hummock mass forced on the end of the point. This drift, like all accumulations of snow which the wind makes on meeting with an obstacle, left a deep and precipitous gap between it and the hummock, and our only way past was to climb this snow-hill. It was so steep and slippery that the 8-man sledge had to be partly unloaded, and then each sledge hauled over separately by all hands. This point we named Drift Point.

DRIFT POINT.

The coast beyond this trended to the north-eastward, and was one continuous, steep, slippery, snow-slope. Sometimes, where the shore hummocks were high, there was a

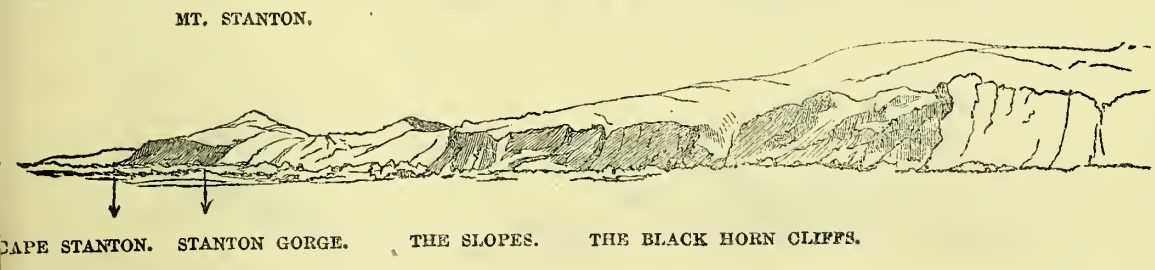
edge at the bottom covered with deep soft snow, but more generally the slope ended in a straight drop of from 5 to 15 feet on to the ice.

The next point was very much the same as Drift Point, and the slopes continued for some distance beyond. We had to double-man the sledges to get on at all, and even then our progress was very slow. To prevent losing ground, and to clear what we took to calling the drift-pits, which existed in a greater or less degree round every hummock, we had to keep dragging up-hill as well as forward, and thus, making a great deal of see-way, the sledges were hauled along by degrees.

Next journey we started on a more level road, and hoped to make a better march, but we soon came to another point worse than either of the other two. The slope, which continued for over two miles, was so steep that it was impossible to stand on it, while towards the end it became almost perpendicular. At the foot of this slope was a tortuous and intricate passage along and inside the hummocks, full of deep holes and covered with thick soft snow. The work of getting through this promised to be endless, and it was impossible to say what was beyond, so I sent Lieutenant Rawson, accompanied by Dr. Coppinger, to report on the road; in the meantime we commenced to cut through all obstacles. They returned in about two hours to say that, after two miles of a road that got worse and worse, they came to a cliff that went sheer down into the water, and which it would be impossible to pass without going out on to the ice.

I have gone into these particulars to show how important I considered it to keep to the land on the outward journey, though at the same time I felt it was greatly retarding our advance. It had been impressed upon me that the object of keeping to the land on the outward journey was to prevent leaving an impassable barrier in the rear, which, supposing the ice to break up before our return, would effectually cut off the retreat of the party. But here was a case in which it was necessary to depart from the rule. The cliffs extended, as far as could be judged, for about four miles, and must be passed by the ice or not at all. It was too late to depend on boats being sent to meet us, so we hoped that the ice would remain and befriend us.

As we had to take to the ice we took advantage of the good floes that lay in our direction, and struck the land again some distance beyond the cliffs, which in consequence of a remarkable black rock like a horn projecting from one part, we called the Black Horn Cliffs.



It will now not be necessary to do more than to say that the next three journeys were spent in crawling along the sides of the never-ending snow slopes, sometimes halted for hours, while as many as could be employed were cutting a road in the hard, slippery snow, wide enough for the whole breadth of the sledge. The angle of these slopes—carefully taken with a clinometer by Dr. Coppinger—showed that they varied from 20° to 24°. If the snow was hard it was impossible to stand on this latter incline, and here broad roads had to be cut. So direct and heavy was the pressure from outside in some parts of these slopes, that the floebergs were forced right up on to them, and left us nothing but the steep talus of the cliff by which to pass.

On the 4th of May we arrived at a place which seemed so suitable for a depôt that we determined on leaving our three water-tight metal cases there, containing 120 rations, or 10 days for 12 men, instead of the regular depôt further on, thus reserving four days for possible delays in repassing the Black Horn Cliffs. Dr. Coppinger, who was to leave us on the 5th, could gain nothing by waiting until that time, as we were then halted in order to cut a long extent of road; so, giving us such provisions as he could spare, he set out on his return, having himself the day before walked on to Cape Stanton.

Not only was the slope travelling very slow, but both men and sledges suffered from it. The work was unusually hard, and the strain on the ankles caused them to swell and become stiff; the heavily-loaded sledges, from continually resting on one runner, bent it inwards, and in the case of the 5-man sledge, not only exhausted the supply of spare uprights, but eventually proved the ruin of the entire runner. How-

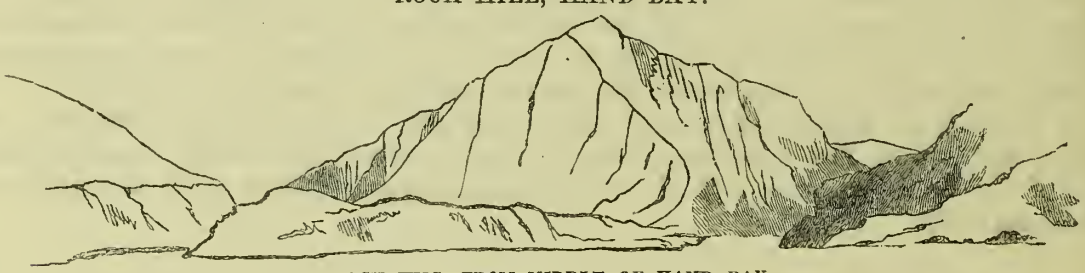
ever the end was near at hand, and on the morning of the 5th we encamped at Cape Stanton, which would have been in sight the whole time had not the weather been densely thick.

Our next start was made in high spirits, the slopes were passed, the sun shone once more, and a wide Bay lay before us, but though it was infinitely better than what we had had, still deep soft snow made our distances travelled very short. It was at the end of this journey, May 6th, that J. Hand, A.B., one of my sledge crew, told me in answer to my inquiry as to why he was walking lame, that his legs were becoming *very* stiff, he had spoken to Dr. Coppinger about them, but attributing the stiffness and soreness then to several falls that he had had, he did not think much of it, before that officer's departure; now, however, there was pain as well as stiffness, and both were increasing. I directed him to use liniment before he turned in, which he afterwards said made him better.

In our next journey we passed another fine Bay, whose level and unbroken surface appeared not to have been disturbed for many years. During lunch time we dug through 2½ feet of snow, and came to ice which was perfectly fresh for 3 in. down; this was almost at the entrance of the Bay. I observed here also that from Cape Stanton the shore had been lined with floe-bergs of great size, particularly at this Bay, which I called Frankfield Bay, while from Drift Point to Cape Stanton the floe-bergs were much broken up, the shore hummocks consisting of accumulated blocks, sometimes attaining a great height.

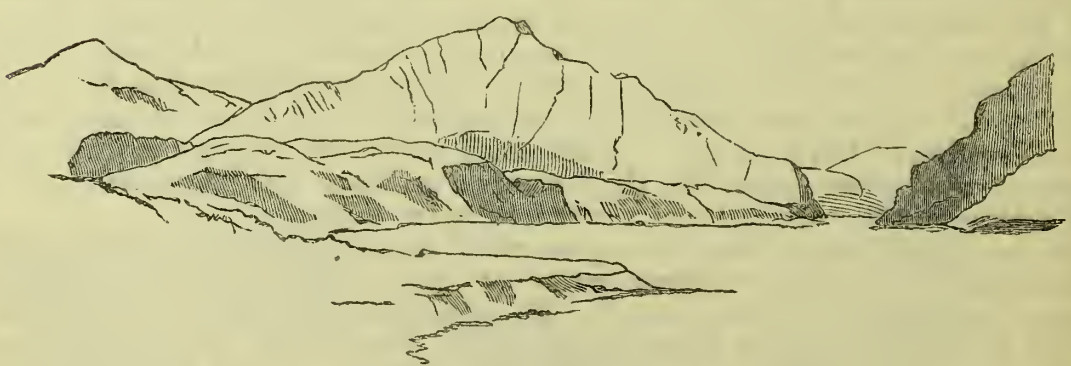
To seaward there appeared to be large tracts of good travelling ice, though the hummock ridges were undoubtedly heavy. Up to Cape Stanton high land and rocky

ROCK HILL, HAND BAY.



ROCK HILL, FROM MIDDLE OF HAND BAY.

ROCK HILL, FROM C. STANTON.



ROCK HILL, FROM CAPE LOWE.

cliffs, reaching to the very sea, was the character of the country, but that seemed to end with that enormous mass which I named Rock Hill. Beyond was a low foreshore, with point after point projecting out, the land gradually rising into low rounded hills, with only a distant back-ground of mountains. This aspect of the country promised better travelling, and I was anxious to push on, but as usual, "more hurry, less speed," for after crossing Frankfield Bay, and dragging the sledges over a hill 150 feet high—the only practicable route—both Lieut. Rawson and myself came reluctantly to the conclusion

that the men were very much done, and required a day's rest; as we had been dragging ourselves all the time we were better able to judge of their feelings. Hand, who had thought himself better at starting, was now quite lame, so we camped, determined to wait for a day, in the hope that rest would restore both the lame and tired. While waiting, I will take the opportunity to explain how it was that I had to send Lieut. Rawson back. On coming into camp I examined Hand's legs, and found the thighs discoloured in patches, and from his description of the stiffness and pain I suspected scurvy. I had no reason to expect it, indeed I had never thought of it, but the striking resemblance of the symptoms to the ones described in the voyage of the "Fox," as being those of Lieut. Hobson, who suffered severely from scurvy, suggested it to my mind, and my suspicions were confirmed by Gray, the Captain of my sledge, an Ice Quartermaster, who, in his whaling experience, has seen much of it. He, however, led me to believe, at the same time, that it would probably wear off, saying that many of the men in whale ships who have it lying "'twixt the flesh and the bone all the winter," as he expressed it, wear it off by the regular exercise and work of their occupation when the spring comes; it was a good sign, he said, that it should come to the surface. Thus, from the 7th until the 10th I waited, hoping that his words might prove true. I was very reluctant to order Lieut. Rawson to return, it was like sending back half the party; it would be, I felt, a great disappointment to him to turn back then, and his advice and assistance would be a very great loss to me, but the indications of the disease and their aggrevated nature became too plain to be misunderstood—sore and inflamed gums, loss of appetite, etc., all pointed too clearly to scurvy; so on the 10th of May it was arranged that Lieut. Rawson, with his party, should take Hand back, deciding, on his arrival at Repulse Harbour, whether to cross over to the "Alert" or go on to Polaris Bay. I at the same time called upon the remainder of my men to say honestly if they suspected themselves to be suffering from the same disease, or could detect any of its symptoms, as in that case it would be better for the party to advance reduced in numbers than to be charged with the care of sick men. I did this because two of them had complained of stiff legs after the hard work on the snow slopes, but they all declared themselves to be now perfectly well, and most anxious to go on.

I did not take one of Lieutenant Rawson's men to fill up my crew for I feared that the time might come when he would have to carry Hand, and I suspected that George Bryant, C.M.T., the captain of his sledge, was already affected with the same disease. Thus it was that early on the morning of the 11th of May Lieutenant Rawson left me, much to my regret, he making the best of his way back, whilst I continued to advance with six men.

I must now go back to our camp of the 7th, which we named Point Rest. We started again on the evening of May 8th, and travelled along a low flat shore, round several small bays, the low hills, unlike the barren and rocky land that we had left, abounding in vegetation, and the few bared patches showing traces of hares and birds—evidently these were their feeding grounds, and it was here that Alex. Gray saw a white owl, the first bird seen this season.

As we advanced along the coast the low lying hills that formed the fore-ground became more like downs, rising quickly from the sea and continuing for some considerable distance inland at the same elevation, whilst at the back still continued that chain of high land, most conspicuous amongst which was the mountain we knew as Mount Punch. We had seen it nearly the whole time, and always with the same appearance, so that I was quite at a loss to know whether it was a very peculiar shoulder on a large mountain, or one hill behind another at a great distance.

On the 10th of May we reached a point on the coast where a broad and deep river must have at one time, or does now in summer, run into the sea. Our advance had not been rapid for we were still travelling in thick soft snow, and often had to double-man the sledges. Here we remained half-a-day while a redistribution of the provisions was made, preparatory to Lieutenant Rawson's return, and also to afford us the opportunity of ascending a mountain for the purpose of overlooking the long extent of low land which we had passed, and connecting the past, present, and future, by a round of angles. About five miles over snow-covered downs, and then a slippery ice-covered mountain to climb, was rather hard work, but the view from the top of Mount Wyatt, 2,050 feet (called so as being Lieutenant Wyatt Rawson's furthest), amply repaid us for our trouble. Bearing about N.E. was an island, as near as we could judge 40 to 50 miles off. Tracing it from its west extreme, it trended south and east for some distance, and then turning to the east it got lower and lower, until it was difficult to say whether it continued or not; but just where this doubt arose, more land appeared much nearer and plainer—it was a point quickly rising into high land, but

soon shut out by another point yet nearer. This last land could be traced for some distance to the eastward and southward, and evidently formed the north-eastern shore of a deep fiord, which was shut out from our view by a high mountain—this mountain gradually sloped down to a low point, and from this point, running in a southerly direction, a line of cliffs commenced which evidently formed the eastern shore of another and nearer fiord, and which the land close to hid from view. This was the country that we were coming to as we saw it from Mount Wyatt that afternoon, but there was still more to be observed. I had noticed that morning as we came along the coast that all our big floebergs had disappeared, and now I saw the reason why—for starting from the shore close under our position, and stretching away for 10 or 12 miles in the direction of Mount Hooker, was a distinct line of demarcation: it then turned to the northward, and ran straight for the west end of the distant land. All to the eastward of this boundary was smooth and level, while to the westward lay the Polar Pack, with its floes and chains of hummocks. The day was fine, but a very high wind was blowing, and the cold at this elevation was intense. The northern horizon had a slight haze over it, which made the distant land indistinct; but the Grant Land shore could be clearly seen, and the known points easily recognized.

Inland the view was limited by the range of mountains before spoken of; but we had opened Mount Punch, and found it to be a high mountain between 3,000 and 4,000 feet high and a long way inland, in front of which rose another high mountain, but with a broad and round top, over which we had always seen Punch. It was, of course, called Judy. I was glad for Lieutenant Rawson's sake that he obtained such a good view of this unknown country before turning back, and it was with a strong feeling of interest in the work and hope for its success that our now reduced party started on the morning of the 11th May.

Early next journey we arrived at the end of the unbroken coast-line along which we had hitherto travelled in a north-easterly direction, and, as the general direction of the land beyond was more easterly, this must have been the highest northern point reached. Unfortunately, though we twice halted here, each time it snowed heavily, and I was unable to get a Meridian Altitude. With a crew reduced to six and a probability of my not being able to drag, which I had done hitherto, I came to the conclusion that to do good work in the wide field of operations opening before us we must lighten the sledge at all cost, so here, at this point, which I called Cape Bryant, we left in depôt all our spirits (fuel), 56 lbs. of pemmican, all our knapsacks and gear, rifle, water-bottles, ammunition, etc., in all 180 lbs., and thus lightened started for Cape Fulford, which is the north extremity of the line of cliffs on the west side of St. George Fiord.

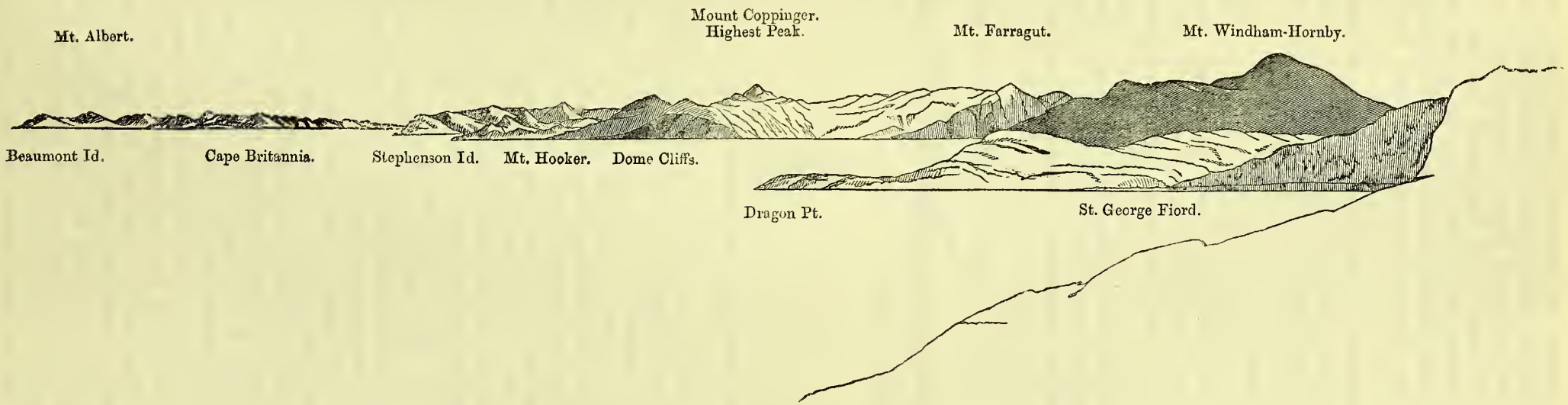
In obedience to my orders (par. 9), it was necessary that I should examine what appeared to be a deep inlet, but now that I was alone I felt that the utmost that I could hope to do, and which seemed to me would be of the most service, was to follow and ascertain the direction of the mainland as far as I could, at the same time taking every opportunity of ascending high mountains to obtain the fullest information relative to the off-lying islands, if such existed. Thus it was that, after looking into St. George Fiord, I pushed on across to Dragon Point. St. George Fiord is a deep inlet, into which I saw about 20 miles. It runs in a southerly direction, and, as I afterwards saw, has a branch continuing to the southward, and an easterly one which probably connects it with St. Andrew Bay. The cliffs on either side are so similar in outline and formation that they appear as if they had only been split asunder yesterday. The road across the mouth of the Fiord, which was exposed to the north wind, was very good (the only good bit we ever had), being hard and nearly level, and we did the 9 miles with ease and comparative pleasure.

Arrived at Dragon Point, we opened out another wide reach of bays and fiords, and while debating in my own mind which to follow I felt how powerless I was, single-handed, to follow out such numerous and extensive lines of exploration. I was most anxious to reach Mount Hooker, as I considered that from its summit I should not only see the islands to the north, but get the best idea of the trend of the mainland; at the same time I felt I could not leave these wide and deep fiords behind me, any one of which might be a through passage; so, holding to my original plan, we started for Cape Cleveland.

On our way we passed some most remarkable ice-hills, which from a distance we had taken for islands. Some stood singly, huge masses of solid blue ice rising gently, with rounded outlines, from 30 to 40 feet above the floe; others, grouped together, looked like a mountainous country in miniature, and formed far too formidable a barrier for us to overcome. In rounding them we discovered an opening to the right, and, rather hoping that it would turn out something small, we steered for it. The end of that march

VIEW FROM MOUNT WYATT.

(2,050 ft.)

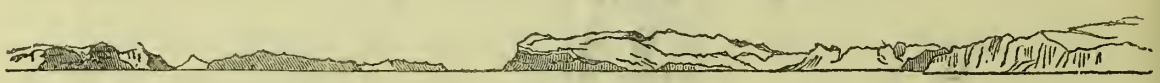


we camped near its entrance, and when we started again I went on, accompanied by one man, to explore it, whilst the sledge pushed ahead with orders not to go beyond Cape Cleveland, in case of having to turn back. Unfortunately, the weather was very thick and misty, and I almost despaired of doing much that day; however, by brisk walking, we got so far down into the opening that from the nature of the surrounding shores I came to the conclusion that the high land on our left was an island, and that this inlet, which here took the form of a bay, communicated with the fiord to the north of Cape Cleveland.

I took particular notice of a headland with a remarkable base (we could only see half way up the cliffs anywhere), and felt sure I should see it again from the other Fiord; so contented with that, we returned to the sledge which we found at Cape Cleveland. Our next journey was down the opening between Cape Cleveland and the land which terminates in Mount Hooker.

As my object was to identify, if possible, the land I had seen from St. Andrew Bay, we crossed it almost at right angles to open it out quickly, and before we had got half-way I recognized my remarkable base, which, now that I could see the whole of it, turned out to be a very bold and peculiar Cape; thus the high land which had shut our view on the left yesterday, and now hid St. Andrew Bay from us, was an island, and received the name of Castle Island, from the inaccessibility of its high, steep, and rugged sides, in all but one narrow place, which was called the Castle Gate; Cape Buttress, the remarkable headland before alluded to, I now found to be the extremity of the land that formed St. Andrew Bay, and it was separated from the Mount Hooker shore by a channel, through

VIEW OF CHANNEL PAST CAPE BUTTRESS.



Lower part of Cape Buttress, seen through a glass from St. Andrew Bay.

which I could see no land; the day was so clear that I was quite certain, as far as I could see from the floe, that there was nothing beyond; but as it was an important point to settle, I still pushed on across the Fiord to reach an island from the top of which I hoped to have a good view through; this was on the morning of the 16th of May. Up to this time the travelling since leaving Cape Fulford had been pretty good, and the progress fair, but that same evening when we started again it was through soft snow about 18 inches deep; this was very disappointing, for the floe looked most promising; in fact, the whole of this vast tract as far as we could see, from Mount May to Cape Buttress, was one level plain, over which we expected to travel easily and rapidly. We pushed on, hoping for better things, and at camping time had reached, not the island we had started for, that we had missed in a dense fog, but another smaller one, about 1½ miles west of it. The travelling had become worse and worse, the snow varied from 2½ to 4½ feet in thickness, and was no longer crisp and dry, but of the consistency of moist sugar; walking was most exhausting, you literally had to climb out of the holes made by each foot in succession, the hard crust on the top, which would only just *not* bear you, as well as the depth of the snow preventing you from pushing forward through it, each leg sank to about 3 inches above the knee, and the effort of lifting them so high to extricate them from their tight fitting holes, soon began to tell on the men. William Jenkins, carpenter's mate, Peter Craig, A.B., and Charles Paul, A.B., complained of stiffness in the hamstrings, and all of us were very tired. The morning was most beautiful, but the island close to us was inaccessible on account of a reef, which caused the tides to break up the ice at its margin, and to maintain a barrier of water round it. I could find no way past this, and to have gone round to the other side, or to the other island, would have been 4 hours' hard work through that snow, so I gave it up, took a round of angles, and sat up for the Meridian Altitude. Our next march was made under a hot sun, through snow never less than 3 feet thick; we were parched with thirst, and obliged to halt every 50 yards to recover breath.

The shore for which we were making did not seem more than two miles off, so I went ahead to see if the travelling was better under the cliffs. I got about 1½ miles

ahead of the sledge in 3 hours, and then gave it up. I was nearly done; so I hailed them to go to lunch, but would rather have missed three meals than gone back all that distance, so I had a good rest and made a sketch instead; and then seeing that the sledge would never reach me that day I started back for them walking in my tracks. In the meantime the men had been struggling on as best they could, sometimes dragging the sledge on their hands and knees to relieve their aching legs, or hauling her ahead with a long rope and standing pulls. When we encamped we had hardly done two miles, and Jones was added to the list of stiff-legged ones. The next march, May 19th, they could hardly bend their legs. We tried every kind of expedient. We made a road for the men to walk in, and tracked the sledge. Then we tried a broader one for both sledge and men, but all to no purpose; and at last went back to the usual way, and tugged and gasped on, resting at every ten or twelve yards. In my journal I find this entry for the day: "Nobody will ever believe what hard work this becomes on the fourth day; but this may give them some idea of it. When halted for lunch, two of the men crawled for 200 yards on their hands and knees, rather than walk unnecessarily through this awful snow; but although tired, stiff, and sore, there is not a word of complaint: they are cheerful, hopeful, and determined. Since 12 o'clock, it has been my birth-day; but I can safely say I never spent one so before, and I don't want to be wished any happy returns of it." That march we did not make much over a mile. Everyone was very tired with the unusual exertions of the last few days, and the work was pain and grief to those with stiff legs. Matters did not look promising at all. I had started across the Channel first to see down past Cape Buttress, and after reaching Reef Island, the Northern shore looked so near that I came to the conclusion, that as our next point was Mount Hooker, we had better push on, reach the land and coast along to Mount Hooker. So we went on for two days, until going back seemed as hard work as going on. Our provisions would compel us to start homeward on the 23rd. We could not do two miles a-day, and the men were falling sick. I did not encourage inspection of legs, and tried to make them think as little of the stiffness as possible, for I knew the unpleasant truth would soon enough be forced upon us.

We started again on the evening of the 19th, and worked away as before; but our progress was ridiculously small, and something had to be done: so leaving the sledge we started in two ranks, four a-breast, to make a road to the shore, for the actual dragging was nothing compared to the exertion of making the road. The shore still looked about one mile off: it had looked the same for two days past, and to our astonishment and dismay, we walked for five hours without reaching it. It was evidently impossible on a floe so level that there was nothing in sight the size of a brick to estimate the distance of the high and precipitous cliffs in front of us. I altered my plans and sent them back to lunch and rest, while Gray and I went on. It took us two hours more to reach the cliffs, and when we did, it was to find the same deep snow reach their very foot, for a hundred yards from the shore the ice was seamed with wide cracks covered by snow, into which the sledge itself might have disappeared. These had water in them, the surface of which was quite fresh, probably due to the glacier which we knew to be close to, though now everything was hidden by a thick fog.

I now saw to my great disappointment that we could not reach Mount Hooker, and I came to the conclusion it would be useless to advance any further with the sledge, as turn which way we would, there was the same smooth, treacherous expanse of snow, and only two days' provisions, which would not have enabled us to reach any part of the shore, so I went back to the tent after a 9½ hours' hard march, and found two men, P. Craig and Wm. Jenkins, unmistakably scurvy-stricken.

I therefore decided to wait where we were, if necessary, for two days, in hopes of being able to ascend a high peak just over the glacier, and from that elevation decide the question of the Channel past Cape Buttress, as well as obtain a view of the distant islands. It seemed too cruel to have to turn back after such hard work, without reaching the land or seeing anything, and I was pleased and encouraged by the anxiety the men showed to make the end of our expedition more successful. But it was not to be. May 21st—it snowed hard all day; May 22nd—the same; and a strict survey of the provisions warned us that we must start homewards.

We left on the evening of the 22nd a mournful and disappointed party (for the feeling was shared by all), with two men walking by the drag ropes, and none of the others, A. Gray and myself excepted, any the better for their long rest. We found much to our relief that keeping to our old tracks enabled us to do three times the distance, as we had not to break the road nor lift our legs. I halted at Reef Island, and left a record in a cairn on its north end, according to my instructions, but reserved the skeleton chart for a place more likely to be visited; a copy of the record accompanies *See page* 400.

this report. We then pushed on through the thickly falling snow which had not stopped for an instant; though two of the men were bad, the others soon warmed up to the work again, and the improved travelling enabled us to get on faster in spite of the general thaw, so that we reached the neighbourhood of our camp of the 13th on the 24th, returning in two days, what had taken us six to advance.

Just before camping on the 24th a north wind rose, and, as if by magic, the sky cleared, and it became a beautiful morning, there lay Mount Hooker once more in sight, distance about 16 miles, from which, as I believed, we should see everything; it was too tempting, so the men agreeing eagerly, the plan was arranged. Craig and Jenkins were to remain with the tent provisions and gear, whilst the remainder, with one robe, bags, and five days provisions, were to make a dash for the mountain; the provisions were neatly packed in day's rations, and everything being ready we turned in for a good rest.

When we awoke it was snowing hard, as if it would never stop, so not a word was said, but we packed up and started homewards more disappointed than I can say. By the time we had reached Dragon Point it had cleared again; this was the place where I had settled to build a cairn, and leave the chart and record; one of the highest mountains in the neighbourhood was only 6 miles off, so I determined on one more effort. The cairn was built, the record and chart deposited, and Alexander Gray, Ice Quartermaster, and I set off for the mountain; it took us six hours to reach the top; the view was magnificent, elevation 3,700 feet, but I did not see what I wanted. The Mount Hooker land hid the islands, and the Cape Buttress Channel was shut in. Mount Albert I could see was a separate island. Cape Britannia, as far as could be seen, had very high land far back. Stephenson Island was quite hidden behind Mount Hooker land, which latter towards Cape Buttress extended very far back to the eastward; Cape Buttress overlapped it, but inside and above the cape could be seen either a hummocky floe, or a mer de glace, it looked like a floe, but its sky line had a perceptible curve in it, a haze hung over this part. By the look of the land and shore, a passage seemed to connect St. George Fiord with St. Andrew Bay. St. George Fiord could be traced continuing to the south after making a slight bend to the west. The view inland in that direction stretched away without a break as far as the eye could reach, all much about the same elevation. Mount Punch stood out from most of the other mountains, and Grant Land was distinctly visible, the United States' range being very conspicuous. The view was so immense that to sketch it would have been the work of a day. I tried after having taken a round of angles, but the cold was intense and my fingers soon became stiff; rising clouds warned us to descend, and by the time that we reached the tent 12 hours after starting, it was blowing fresh with thick snow and fog. After a short rest we once more started, making for Cape Fulford; the gloomy and unfavourable weather had a depressing influence on the men's spirits, who, poor fellows, were already rather desponding, for out of seven only Gray and myself were perfectly free from scorbutic symptoms, while the two first attacked kept up with great difficulty.

In due course of time we arrived at Cape Bryant, and camped below the depôt. Paul now could no longer pull, so that made three who walked painfully along in the deep snow, holding on by the drag ropes. Quite a foot of snow had fallen since we had passed, and it was rotting the old crust beneath, which gave way under the weight of sledge and men, and made the sledge seem a ton in weight.

During the very bad weather which continued about this time for many days, I pitched the tent *over* the sledge when halted for lunch, thus keeping the men under shelter and the gear dry, and providing a comfortable seat for the sick; by putting the sledge quite on one side of the tent there was room enough for all the rest to sit alongside it on the sail on the other side.

This comfortable rest of two hours! with an extra half-pint of tea, was thought more of and seemed to do them more good than any thing else we could devise, and so was adhered to for the remainder of the time.

One day I tried what fomenting their legs would do, to Wm. Jenkins and Peter Craig, who were getting very bad; it eased the pain, and they slept well, but next morning they were stiffer than ever. For two days previous they had been unable to change or even reach any of their foot gear, and now Paul was as bad, and for the remainder of the time each man as he arrived at that stage had to be dressed and prepared for the day's journey every morning, and put to bed in the evening.

On the 28th May, finding that we could not go on dragging the full load (with four men) through the heavy snow, we made up a depôt consisting of pemmican, a coverlet, all the knapsacks and gear, spirits of wine, part of the tent, etc., in all about 200 lbs., and got on much better afterwards. We gradually retraced our steps until the morning of June 3rd. Up to this time the weather had been one continuous snow-fall with thick fogs;

the sun once or twice came out for an hour or so and then snow fell again. The sick were getting worse steadily; for the last two days neither Paul nor Jenkins could keep up with the sledge, but crawled along after it, and often kept us waiting, for I would not let them get too far behind. Craig was very bad, but still hobbled along with us. Dobing and Jones were getting stiffer and stiffer, but still pulled their best. Gray and myself were the only sound ones left. The sick scarcely ate anything; they could not sleep nor lie still, and the offensiveness of their breath made the tent almost unbearable.

Having left a record at the cairn, and taken forty out of the eighty complete rations, we started again in the evening, and had not gone ten yards before Paul fell down quite powerless, and from that time until the end he was like one paralyzed, his legs were so completely useless to him. Jenkins still crawled along, but his time was drawing near, and on the 7th he took his place alongside Paul on the sledge. We now had to make two journeys a day, taking the provisions and baggage on for half the time and then coming back for the tent and the sick. With great labour we got round Snow Point, but Drift Point was impassable to us, and so we had to go out on the ice.

On the 10th June we reached Repulse Harbour Depôt, the weather having once more relapsed into a steady snow-fall. Feeling the urgent necessity of getting the sick under medical care, for both Paul and Jenkins were alarmingly weak and short of breath, I read the records carefully, and having considered the matter in all its bearings to the very best of my ability, I determined to cross over to the "Alert." Everything was to be sacrificed to getting over quickly, so we again made up a depôt and left everything we could possibly spare, including the tent, gun, and my sextant and knife, the only two things I had left. We started on the evening of the 11th, and had not got a mile from the shore hummocks before we came to water. It was a large black-looking pool, surrounded for some distance by ice, so rotten that sledge, sick, and all, would have gone in at the first step off the thicker floe.

This obstacle at the very outset, where I so little expected it, made me stop short, knowing the strong tides and currents that existed on the other shore. I felt that with a sick and enfeebled crew the risk was too great, so we turned back and landed again. We had completed from the Depôt to 8 days provisions, that would have been ample to cross with. Now we had to make the best of our way to Polaris Bay, 40 miles off. The question was how much more to take, we eat so little, that 8 days would last us 12 I knew, and if we went on as we had done that would be enough, so taking the tent and gun from the Depôt we started along the coast. Next march Dobing broke down altogether, and Jones felt so bad, he did not think he could last much longer. Poor fellows! Disappointment at the change of routes had much to do with it.

This was our darkest day. We were 40 miles off Polaris Bay at the very least, and only Gray and myself to drag the sledge and the sick—the thing did not seem possible. However, it was clear that we must take *all* the provisions, and then push on as long and as far as we could, so we went back to the Depôt, Gray, Jones, and I, and brought the remainder, 10 days, making us up to 18 days, then on we went.

Craig now could barely walk, but his courage did not fail. Dobing became rapidly worse, but fortunately Jones revived, and there were still three on the drag ropes. We toiled painfully through the gap, a very hard road, all rocks and water, but very little snow. The work towards the end became excessively severe on account of the narrowness and steepness of the passes. The sledge had to be unloaded and the sick lowered down separately in the sail. At last we got into Newman Bay, and found the travelling on the floe quite a rest, but the work had told on the men who were left, and though Jones still dragged with difficulty, it was evident that soon both he and Gray would be too ill to pull at all. I felt stiff and sore about the body from constant over-exertion, but I did not exhibit any of the well-known scurvy symptoms as yet. We were travelling very slowly now, for Craig who had held out so long could scarcely stand, and he and Dobing had to be waited for constantly.

On the 21st June we camped about 10 miles from the bottom of the Bay, close to the west or south shore. It soon after came on to blow a gale, and the squalls were so violent and changeable in their direction, that all our efforts to keep the tent standing were unavailing, and we had to put the sick on the sledge, and cover them over with the sail, but the drifting snow which whirled around us penetrated everywhere, and soon wet them through, and they caught colds, which made Paul much worse afterwards.

In the afternoon of the same day the wind lulled, and by using the guys, sledge lashings, and drag ropes, we managed to pitch the tent after an hour's hard work; we put the sick in, and tried to make them comfortable, but the tent was badly pitched, and the squalls from the cliffs, more like whirlwinds, sometimes made the two sides meet

in the middle. We were all huddled up in a heap, wet through, and nobody could sleep.

This went on until noon of the 22nd, when the wind having gone down we re-pitched the tent and had a few hours' rest, which we so much needed. At 9.30 we started, but the wet and cold had stiffened our limbs, and for the first time I felt the scurvy pains in my legs. Craig and Dobing almost *dragged* themselves along, their breath failing entirely at every ten yards—this appears to be the most marked feature of the advanced stage of the disease; all four now, but especially Paul and Jenkins, gasped for breath on the slightest exertion, it was painful to watch them. We were a long way from Polaris Bay still, and I did not see how we were to reach it under the circumstances.

On June 23rd it became necessary to carry both Dobing and Craig, to enable us to advance at all, and although this in our weakened state made three trips each day, and limited our advance to a mile, yet we were still moving on.

On the evening of the 24th we started for our last journey with the sledge, as I thought; for finding that Jones and Gray were scarcely able to pull, I had determined to reach the shore at the plain, pitch the tent, and walk over by myself to Polaris Bay to see if there was any one there to help us, if not, come back, and sending Jones and Gray, who could still walk, to the Depôt, remain with the sick and get them on as best I could. But I thank God it did not come to this, for as we were plodding along the now water-sodden floe towards the shore, I saw what turned out to be a dog-sledge and three men, and soon after had the pleasure of shaking hands with Lieut. Rawson and Dr. Coppinger. Words cannot express the pleasure, relief, and gratitude we all felt at this timely meeting; it did the sick men all the good in the world.

Lieut. Rawson had, in my opinion, acted with great judgment in planning his relief expedition, for had he come sooner he not only might have missed us altogether, but the small force at his disposal would not have been of so much service; as it was he came in time, with sufficient provisions, and by one great effort got us all into safe quarters, as I shall explain.

We met early on the morning of the 25th of June, and with the help of his party reached the Newman Bay Depôt the next day, Dr. Coppinger watching the four now utterly prostrate sick with unremitting attention. Half a day was spent here in an attempt to obtain a seal, but without success, and so next morning we started for the Depôt at Polaris Bay, the dogs, with the assistance of the three officers, dragging both sledges. It is mainly due to Hans' clever management of the dogs, and his skill as a driver, that we were enabled to advance so rapidly with such a heavy load. That evening, when we camped, we were only 12 or 13 miles from the Depôt. Both Paul and Jenkins were now in a critical condition, but Paul more so than Jenkins; he had caught a fresh cold the day before, and his terrible fits of coughing, and efforts to breathe, were most distressing. I felt the importance of getting them both to a state of complete rest as quickly as possible, an opinion in which Dr. Coppinger concurred, so on the morning of the 28th Dr. Coppinger and Hans, with the two men on the 8-man sledge drawn by the dogs, started for the Polaris Bay Depôt. Soon after, Lieut. Rawson and myself, having placed Craig and Dobing on the 5-man sledge, as well as the tent and all the gear, but only two days' provisions, also started for the same destination. Jones and Gray, who could still walk, though slowly, came on behind. Fortunately for us two, the wind helped us for some time, but later on, the travelling becoming very heavy, we were obliged to camp, having accomplished a little over 3 miles.

Next day, as we supposed the sledge on its way back to us, and I was anxious to move the sick men as little as possible, I determined to await its arrival. This did not occur until 3 a.m., of the 30th June, and the whole party were so done, dogs and men, that they had supper and turned in. They brought me a letter from Dr. Coppinger saying that he had had a very arduous journey, and had not reached the Depôt until midnight. The extremely rapid thaw of the snow on the plain obliged them to cross broad strips of bare shingle, while the floe was so seamed with cracks that they must have travelled double the distance in looking for a road. The sick had borne the journey well, and eaten with good appetite on their arrival, but from noon of the 29th, Paul had gradually grown weaker and weaker until he died at 5.15 p.m. Jenkins was no worse. I was very much grieved at Paul's death. I had watched him and cared for him so long, and had hoped so that we might not be too late, that I felt his death very much. However, we were not far from the end of this arduous journey now, the thing was to get the remainder in as soon as possible, so at 7 o'clock we once more started, Lieut. Rawson and his party taking the sick on the 8-man sledge round by the sledge route, while I took Gray and Jones round by the foot of the hills. We three reached the

Depôt at 7 a.m., and were warmly welcomed and cared for by Lieut. Fulford, Dr. Coppinger and the two men in camp. Lieut. Rawson, with his party, arrived at 11 a.m., after a very heavy journey, having travelled nearly all the way on bare shingle. So at last we were all safely in, in good hands and comfortable quarters.

The next day being Sunday I read the Morning Service, and all of us joined most heartily and fervently in rendering thanks to Almighty God for His gracious mercy and protection towards us.

Having benefited so largely by the untiring zeal and energy of both Lieutenant Rawson and Dr. Coppinger, I cannot close this part of my letter without saying how much I owe to them for their cordial co-operation, or how much I was assisted by their advice and experience. It must seem like presumption for one so little their senior to bear testimony to their manifest talents and abilities, but well known as they must be to you, I have the advantage of having had them exercised on my behalf in trying times, and I therefore speak no less from gratitude than from conviction.

It will now only be necessary to allude briefly to our stay at the depôt in Polaris Bay. The sick were under the care of Dr. Coppinger, and steadily improved from the first. My stiffness became worse after we arrived, but it was never very much. Seal meat and game were procured in sufficient quantities to supply the sick entirely, and the benefit derived was great.

On the 12th of July Lieutenant Fulford started for the ship, as explained in my letter of the same date. On the 19th you arrived to assist us back, and on the 29th the first detachment led by you started on its return to the ship, you having left me instructions to bring the remainder over in a week's time, by which period it was hoped W. Dobing and Peter Craig would be strong enough for the journey. During the next few days they improved so much that we did not doubt of being able to start on the Friday, as arranged; so, accordingly, everything was prepared and ready by the afternoon of that day, but the weather was so bad, with rain, snow, and fog, that starting was out of the question, and we were compelled to wait for a change. The thick weather continued until Saturday afternoon, the 5th of August, when it cleared up and became fine, but almost immediately began to blow from N.N.E., starting the ice from the Polaris shore, and increasing rapidly in violence, until it was blowing a hard gale. During this gale, which lasted from Saturday the 5th until Tuesday the 8th of August, we observed the ice moving very fast down Robeson Channel, especially in the middle, and from the great quantity which came down, we came to the conclusion that it must have, in a great measure, replaced the ice of the basin, which, doubtless, had found an outlet to the southward. This made me very desirous of starting, as not only was this northern ice much heavier, but it was more likely to remain in motion now that it was so thoroughly broken up, and this, for our small party, was a serious consideration.

See page 401.

The party consisted of nine persons, as follows:—

Lieutenant L. A. Beaumont,
Dr. R. W. Coppinger,
Alexander Gray, I.Q.M.,
George Bryant, C.M. Top,
Peter Craig, A.B.,
Wilson Dobing, Gr. R.M.A.,
Elijah Rayner, ditto,
Thomas Darke, Pte. R.M.L.I.,
Jno. Murray, ditto:

and the difficulty was to decide whether to take the 20-foot ice-boat, or the 15-foot. If there was much water and little ice, the former would be almost necessary to carry us all with our baggage; but, on the other hand, it would be a great weight for seven men and two convalescents to drag over the floes. The 15-foot ice-boat I knew would hold all the men easily, but with so large an extent of ice in motion ferrying would inevitably expose us to the danger of separation. In fact, that was the one condition which admitted of no doubt—that however we went we must go all together. So, after a careful consideration of the matter, I decided to take the 15-foot ice-boat, relieving her of about 200 pounds of the total weight, which was towed astern on the sledge. To do this we fitted the sledge as a raft with the cork fenders and empty rum tins.

On Tuesday, August 8th, at mid-day, the wind began to abate, and by 10 p.m. the sea was calm, and we were able to start. By carefully stowing the baggage and provisions we left sufficient room to pull four oars, which, with four paddles and one to steer, occupied all hands; but owing to our deeply laden state and to the heavy sledge towing astern, our progress was very slow. The ice was about 2½ miles from the shore, but since the wind had fallen was slowly closing in again. Observing that there seemed

to be a strong southerly drift we steered north, and entered the ice nearly abreast of Cape Lupton. We wound our way gradually between the floes amongst loose brash ice until we emerged into a large expanse of open water, which to our unaccustomed eyes looked quite like a sea, and several times as we were crossing it I wished that we were in the 20-foot boat. It must have been at least 3 miles broad, and, when we disembarked on the floe on its further side, we were already about 8 miles from the Observatory at Polaris Bay. This commencement was so encouraging that we pushed on across floes and open spaces of water until 2.30 p.m. of the 9th of August, by which time we had attained a position distant about 10 miles from St. Patrick Bay, for which we had steered, but a good deal to the south of the line joining it, with our starting point on the other coast.

When we camped I observed with regret that the floe we were on was slowly but surely moving with the whole of the ice to the southward. In passing from one to the other, or in pulling along between them, it was not easy to detect this movement, and insensibly we had been carried to the southward of our course. But there was now no help for it; we had had a long journey and must camp, so I hoped that we should make up in our next march what we lost during our halt for rest. Believing that we might reach the shore the next day by making a push for it, I limited our halt to 7½ hours; but even in that time I estimated that we had been swept 6 miles directly away from the point we were striving to reach. This was a most unwelcome discovery. I had anticipated and allowed for a southerly drift, but not for an easterly one as well. However, with good travelling I hoped we should make up for all we had lost before lunch, and make good some few miles afterwards. In this I was mistaken. We had unfortunately got into ice which was so heavy, and the floes so insignificant, that the delays caused by the frequent change from sledging to boating, and *vice versâ*, made us lose more than we gained. All the leads of water we met lay at right angles to our course, and the varieties of difficulties we met with are too numerous to mention. Suffice it to say that until we did it I would not have believed that a boat or sledge could be pushed and dragged through and over such obstacles.

After a hard journey of 14 hours we found ourselves still a good two miles from our position of the day before, and much further south. During the journey we noticed that the ice had moved to the southward for quite eight hours out of the twelve, and had been stationary, or moving slowly to the northward, for the other four; evidently we were affected with unequal tides, which, aided by a light north-westerly wind, had prevented us from recovering our lost ground. As soon as the southerly tide slacked, we struck straight in for the land, if possible to get out of its further influence, but, as I have said, without success. I was again obliged to camp for fear of overworking the men. During that halt, owing to the wind having fallen, we did not drift so much—about four miles—but that was quite enough to make me feel anxious, for we were now nearly abreast Cape Baird; each halt we drifted more than we could make up during the day, and consequently we were slowly, but surely, passing into Kennedy Channel, from which I do not think that we could have reached the ship with our stock of provisions. The men worked well, but not like men who were aware of their difficult position. It is a most difficult thing, unless you watch for it very closely, to tell in which direction you are really going when in the midst of moving ice, and although they could not help seeing that we had drifted very much to the southward, yet they would not believe that so much travelling and hard work had all gone for nothing—in fact, had not realized the situation. Both Dr. Coppinger and myself had agreed that our wisest course on this, the third journey, was to make straight for Cape Baird, and push on until we reached it, so accordingly we started with that object full in view at 8.30 p.m. on the 10th of August; we believed ourselves then about six miles off, and hoped to reach it by the usual camping time, but in reality it must have been much further. In the early part of the journey we came across several good floes, and made as it appeared to us fair progress, but we were drifting faster than ever to the southward, and had quite lost sight of Miller Island, our most important landmark, nor did we seem much nearer to Cape Baird; in fact, matters were looking anything but pleasant. For the last two days we had been doing all we could to beat the tides, and each day had been driven further back; nor did I see how it could be altered in any way; we were already doing the maximum of work, and taking the minimum of rest, yet that was not enough, and our only chance lay in going on without stopping until we reached the land.

At about 5 a.m., Aug. 11th, a marked change took place, a breeze sprang up from the westward and the ice already in motion travelled much faster, especially that about Cape Lieber which was blown across Kennedy Channel towards Bessels Bay, large spaces of water formed in rear of this ice giving more room for the remainder to move

which it did with results very unfavourable to us. Floes turned while we were crossing them, lanes opened and closed again within a few minutes, and the embarking and disembarking became so incessant and hurried that there was hardly time to look ahead or choose our road. This went on until 1 p.m. (Aug. 11) when the wind changed to the S.E. We had then been 16½ hours at work, and according to usual routine it was time to camp, but we had drifted so much and gained so little, the ice was in such a state of commotion, and the cape still so far off that camping seemed like giving up our last chance of reaching the ship; so I explained the necessity to the party and pointed out that a special effort was required; they quite understood it, and after a hurried supper we started again. Shortly after, the tide turned, and the S.E. wind commencing to take effect, produced the utmost confusion in the moving mass, it was going in every direction, turning and wheeling in a most perplexing manner, and making it difficult to advance in any one way even for five minutes together. About this time we found ourselves on a small piece of ice not more than 30 yards broad, from which we made five attempts to start but without success; either our piece turned round, or the road ahead became blocked or was in too rapid motion, each time something unforeseen prevented us, until it became quite ridiculous the way in which we ran from one side of our prison to the other. At last a very large old floe swept down upon us, and we were fortunate enough to reach it; we were now thoroughly unanimous as to the necessity of pushing on in earnest, and we crossed floe after floe as hard as we could go, but our fortunes were on the mend, the wind had checked the ice, the tide was in our favour, and we were nearing the land. Away to the southward along the Cape Lieber shore there was open water as far as we could see, almost reaching across to Joe Island, it was blowing very fresh in the channel and the sea beating against the ice made a loud roar: the ice was slowly being pushed back again. Taking advantage of this favourable change we pushed on and by 10 p.m. (Aug. 11) had done so well, that we stopped and had breakfast; we were then approaching the large water spaces which still remained about Cape Lieber. One by one we reached and crossed them, on one occasion though only doing it just in time, as the already deeply loaded boat was half full of water, from the plug having been loosened in launching off the ice. Eventually we launched into a large open space of water which seemed to reach the very foot of the cliffs, and as we steered for a low part of the shore about four miles off we hoped that our difficulties were over; the wind had fallen light but the ice was still coming back, and would only just give us time to land, so we pulled away as fast as we could, some were so tired that they went to sleep while pulling, and no wonder, for when we landed at 7 a.m. (August 12th) we had been over 32 hours hard at work. I don't think we should have reached the shore even then if it had not been for the S.E. wind.

After supper and a good sleep Dr. Coppinger and myself walked to Cape Baird about 1½ miles off, to determine how to cross over to Discovery Harbour; up to this time the weather, most fortunately for us, had been extremely fine, but now a thick fog was settling down everywhere over the land. We were in time, however, to see across the floes into Discovery Harbour, and much to our surprise saw *two* ships at anchor there. As it turned out afterwards the "Alert" had passed down close to the shore in the very bad weather just before we started.

Having selected our route and built a cairn, we returned to the camp, and after lunch started, at 7 a.m., August 13th, through closely packed ice which had returned very soon after our arrival. Owing to the thick mist we experienced much difficulty in keeping to the line, and although after the first hour we had no water to cross, yet we had some very bad ice to get over, and once or twice nearly had the boat and sledge through. We persevered, however, in the hope of getting across in one march, as I felt from seeing the "Alert" there that our not having arrived might prove very inconvenient, but the way was difficult and we had to go a long round to find a practicable road, so though our progress was sure, yet after 22 hours' solid dragging we seemed still so far off that I took Dr. Coppinger's advice and camped. It was then 5 a.m., August 14th.

In the evening, at 7 just as we were preparing to start, we heard a cheer, and then another, and running out, found that it came from Commander Markham and his party, who had come out to our assistance, having left the "Alert" at 3 p.m. They came out provided with fresh meat, wine, and every delicacy of which they were possessed, and most generously insisted on our using them. We were glad to be able to say that we were in perfect health and in good training, all except the two convalescents, who had been spared as much as possible, but of course were very tired. Having freely partaken of all the luxuries so kindly provided by the "Alert's" party, we started in their company for the shore, following their outward tracks. After a short march of about 2 miles we reached the shore of Bellot Island, where the breakwater joins on to

the land, and were warmly welcomed by Captain Nares and all the officers of the "Alert," who took us on board and after another hearty meal sent us to bed.

Next day, August 15th, we left the "Alert" and pulled across the Harbour, arriving on board the Discovery at 1 p.m., having been absent from the ship 131 days.

During this long absence, through suffering and privation, not to speak of hard work, the conduct of the men was most satisfactory. None of us, I think, had realized to the full what a sledging campaign meant, but the men least of all, and the greater is their merit, therefore, for the way in which they met and overcame all difficulties. The interest they took in the work helped and encouraged me many times, and when sickness came, and one by one they became incapable of taking an active share in the work, it was only by inches that they yielded, doing for themselves and others all they could to the very last, while double and treble the duties were cheerfully undertaken by those who remained; and it was not their conduct only which was so gratifying, but the intelligent way in which all orders were carried out, thus materially assisting and forwarding the work.

All are deserving of mention, but I must fain be satisfied with naming those who were most conspicuous for their zeal.

Alexander Gray, I.Q.M., the Captain of my sledge, proved himself a most careful and trustworthy second, his whaling experience has made him a quick and intelligent observer, and enabled him to render me much assistance, he is a hardy and enduring traveller.

Frank Jones, Stoker, earned the gratitude of the whole party, by the cheerful manner in which he carried out the numerous duties which devolved upon him, even after he himself fell sick; his patient kindness and good nature to all was beyond all praise.

Amongst those of the party who came under my notice for their zeal and energy, but who did not belong to my sledge crew, I must mention George Bryant, Capt. M.T.; James Cooper, 2nd C.M.T.; and Thomas Darke, Pte. R.M.L.I.

As for the sick they bore their sufferings with manly fortitude; it is not exaggerating to say that they suffered agonies, and not the least of their troubles, was the thought that they were a burden to their fellows. Peter Craig especially held out to the last almost, by an effort of will which must be seen to be appreciated. Of the two poor fellows who died, *all* this may be truly said, they were both good men, and very much liked by us all.

I have the honor to remain,
Sir,
Your obedient Servant,
L. A. BEAUMONT,
Lieutenant, R.N.

To Captain H. F. Stephenson,
H.M.S. "Discovery,"
Discovery Harbour.

H.M.S. "Discovery" (at Discovery Harbour),
20th August, 1876.

Sir,

I have the honour to inclose for your information a full report of my sledge journey between the dates of the 6th of April and the 15th of August, inclusive. I have added in the form of an appendix the astronomical observations, etc., that were taken, and copies of records left in the cairns.

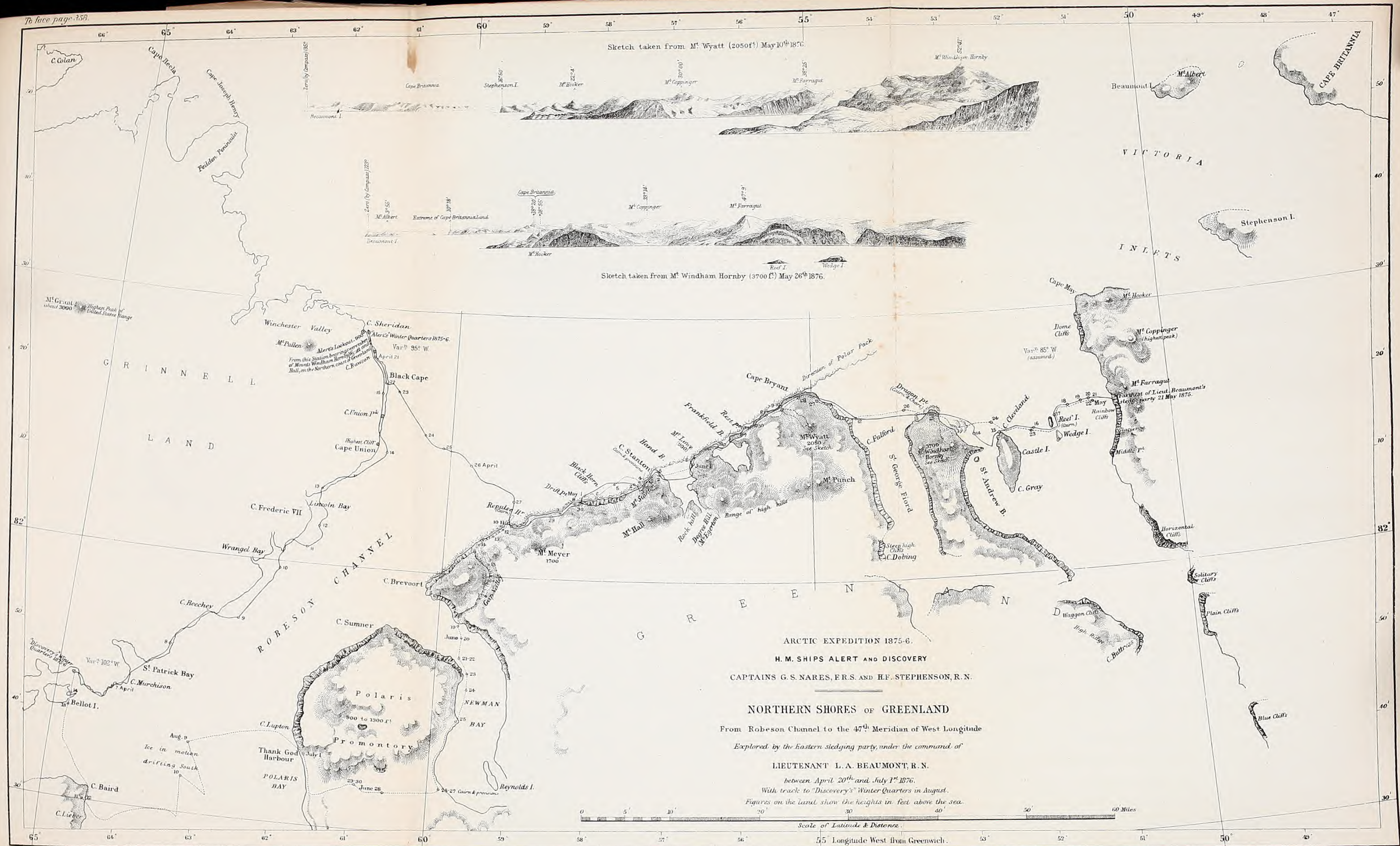
I remain,
Sir,
Your obedient Servant,
L. A. BEAUMONT,
Lieutenant.

To Captain H. F. Stephenson, R.N.,
H.M.S. "Discovery."

H.M.S. "Discovery" (at Discovery Harbour),
20th August, 1876.

Thursday, 6th April.

At 1 P.M. left the ship, in company with Dr. R. W. Coppinger and two 8-men sledges, provisioned for fourteen days, and manned as follows:—



Prepared in the Hydrographic Department, Admiralty, from original documents furnished by the Officers of the Arctic Expedition.

Malby & Sons, Lith.

LIBRARY
24 AUG 1952

"Sir Edward Parry."

1. George W. Emmerson, Chief Boatswain's Mate, Captain of sledge.
2. Alexander Gray, Ice Quartermaster.
3. William Jenkins, Carpenter's Mate.
4. Wilson Dobing, Gunner, R.M.A.
5. Peter Craig, A.B.
6. Frank Jones, Stoker.
7. Charles W. Paul, A.B.

"Stephenson."

1. Jeremiah Rourke, Leading Stoker, Captain of sledge.
2. David Taws, Ice Quartermaster.
3. George Leggett, Acting Ship's Cook.
4. James Cooper, 2nd Captain Maintop.
5. John Hodges, A.B.
6. Benjamin Wyatt, A.B.
7. Thomas Darke, Private, R.M.L.I.

Table showing the Equipment and Weight dragged per Man on Starting from H.M.S. "Discovery."

	lbs.	oz.
1 Tent	31	0
5 Tent poles	22	0
2 Spreaders	0	14
2 Tent ropes	2	8
1 Waterproof sheet	12	0
1 Floor cloth covering	9	0
1 Lower robe	21	0
1 Coverlet	19	0
1 Extra ditto	23	0
8 Sleeping bags	64	0
8 knapsacks	96	0
2 Tent brushes	1	2
1 Clothes brush	0	8
1 Sledge complete	115	0
1·1 Sailing thwart and tye block	8	2
1 Set halliards and braces	0	13
1 Canvas bottom	8	8
1 Sledge trough	6	0
1 Sledge lashing	3	8
1 Sledge clips	4	4
1 Pickaxe	6	8
1 Shovel	5	8
4 Snow knives	3	4
1 Saw	1	8
1 Chopper and board	5	8
1 Cooking stove	28	0
36 Spare wicks	4	8
1 Spirit lamp	6	0
8 Pannikins	4	0
8 Spoons	12	0
8 Water bottles	4	0
1 Rum tin and measure	1	4
1 Scales and funnel	2	12
Set Record cases	1	7
1 Sextant	15	0

	lbs.	oz.
1 Chronometer		
1 Barometer		
1 Thermometer		
1 Telescope		
1 Compass, prismatic		
1 Compass, steering		
1 Gun	7	8
1 Rifle	7	8
Ammunition	16	0
1 Medicine box	6	0
1 Store bag	15	0
2 Cook and sledge haversacks	1	2
8 Duffle coats	48	0
Constant weight	649	4

14 days' provisions, and in addition 7 weeks' spirits of wine and 7 weeks' compressed tea.

	lbs.
14 days' for 8 men = 112 rations at 3 lbs. per ration	336
49 days' for 8 men = 392 at 2 ozs. per man	49
49 days' for 8 men = 392 at $\frac{1}{2}$ oz.	$12\frac{1}{4}$
Total provisions	$397\frac{1}{4}$
Constant weights	$649\frac{1}{4}$
Grand total	$1046\frac{1}{2}$

$$\frac{1046\frac{1}{2}}{7} = 150 \text{ lbs. per man.}$$

The weight of packages has been omitted.

Ship's company gave us three cheers, and all wished us success.

The Captain accompanied us to Dutch Island; the sledges dragging heavily, but the men pulling well.

Weather fine and clear, but very cold; the men wearing moccasins, duffle trousers, canvass overalls, and seal skin caps.

Started 1 P.M.
Camped 6.30 P.M.
Marching 5½ h.
Wind. Wr. Ther.
Calm b.c. −32°
" " −35°
" " −40°
Dist. travelled 6½ miles.
" made good 6 miles.

The travelling was good up to Distant Cape; then came a very rough bit before we got on to the icefoot in Watercourse Bay. 6.30 P.M., halted and camped under the lee of a floeberg. Pitched the tents on ice. Found that the daily provision bags had been forgotten.

Everything was a little adrift, as it was our first night, and the men were tired and cold.

Charles Paul takes cook in our tent. The ice makes a very cold bed; everyone turned in by 8.30 P.M., but what with the cold and the novelty of things nobody can sleep.

Friday, 7th April.

Called the cook at 6 A.M. Fine but very cold; he took a long time dressing, from want of practice, and getting his fingers frost-bitten; so Coppinger had packed and was ready almost an hour before us. Everyone very stiff and cramped from the exertion of yesterday and the cold of the night (− 45°).

Breakfast consisted of about ½ lb. of pemmican, biscuit, and a pannikin of cocoa per man. Pemmican is not much liked, though they don't like to own it.

Packing up was a very slow process to-day, and the result nothing very great; but practice will amend this.

As soon as everything was packed up I assembled the men and told them that while we were away sledging we should have prayers every day before commencing our march.

Started 9 A.M.
Camped 5.50 P.M.
Lunch 1h. 20m.
Marching 7h.30m.
Wind. Wr. Ther.
Calm b.c. −45°
" " −32°
" " −35°
Dist. trav. 7¾m.
" made gd. 7m

9 A.M., prayers. 9.15, started along the icefoot in Watercourse Bay; the travelling very good; everyone soon got warm. Rounded Cape Murchison. Ice pressed close up to it; large floebergs, but good travelling inside.

12, stopped for lunch off St. Patrick Bay; the captains of the sledges had forgotten to serve out the allowance of spirits of wine, so we had to use the stearine lamp. From want of experience the cook allowed it to burn too low, so that the wick was consumed, and it became impossible to melt any stearine to start it afresh. All this caused delay, but we shall not fall into the same error again.

1.30, started again. Crossed entrance of St. Patrick Bay, a very old floe, blue topped. During the afternoon George Leggett, acting ship's cook, one of Coppinger's men, became very sick, probably due to over-exertion; several of the others in the same crew were pulling very feebly. I fell in to their drag ropes, as they could not keep up.

5.50 P.M., camped, every one being very tired. No shelter to-night, and on ice again, but it is quite calm though cold. Things are going a little more smoothly, but I suppose each new cook, as his night comes on, will have his own method of cooking; last night the pemmican was so stodgy it was like eating damp saw dust; and "blue" of tea, the men's expression for the small quantity which remains over after all are served, was in great request.

Rum is used as a night-cap just before settling down, in the hope that it will warm them up, but several of the men don't much care for it.

Clearing our overalls and foot gear of frozen snow in this cold weather gives us plenty to do, it takes about an hour before they are fit to go into the sleeping bags to be thawed for the morning.

Saturday, 8th April.

Called the cook at 6 A.M., but he was so slow that we did not have prayers until after 9.

Started 9.25 A.M.
Camped 6.50 P.M.
Lunch 1½ h.
Marching 8 hrs.
Wind. Wr. Ther.
N.W. 3 to 4 } b.c. −25°
N.W. 2 " −30°
" 2 " −35°
Dist. trav. 8 m.
" made gd. 6m.

9.20, started, all the men feeling very stiff and sore; they are not accustomed to the work yet.

Coppinger and I walked ahead, thinking that it would make them step out. We are following the coast line round Shift Rudder Bay.

About an hour after starting, having got some way ahead, we were called back to attend to Leggett, who had nearly fainted and could not get on; he overworked himself the first day, and has not eaten sufficient food since, he was soon able to walk by the sledge however, and we went on, Coppinger and myself both falling in to the drag ropes.

I tried to round Cape Beechey before lunch, but so many of the men felt weak and done, that we are only going slowly. 1.15 P.M., stopped for lunch, Leggett and others feeling very sick; there is a slight wind, and though the sun is shining brightly, it is very cold; nobody can keep warm, and the water will *not* boil.

2.45 P.M., started again, having had much difficulty in making the tea, owing to the wind; the 4 oz. of bacon which we have at lunch is frozen so hard and so intensely cold to the teeth that no one can eat it.

Rounded the point, and observed a line of steep cliffs ahead; as far as we have come the land has been low and the travelling very good; we have followed the track of the dog-sledge with which Lieutenant Rawson and Mr. Egerton returned to the "Alert,"

but at this point we found two tracks, one going along the land, and the other turning off on to the floe; observing that on their return journey they had evidently avoided the land, we followed their example and lowered the sledges on to the floe.

Our progress on the floe became very slow, as it was rough and hummocky, but keeping out a little way from the land we got on to a good floe and made better progress; most of Coppinger's men were very much done, and just before coming into camp we discovered that Rourke had fallen down exhausted on the snow; as he was behind everyone on the drag ropes, his absence was not observed until we had left him more than half a mile behind.

Coppinger went back for him and I looked out for a camp, as it was clear we could not go on much further that day.

I hope we shall all begin to mend to-morrow, and then we shall get on better.

Camped to leeward of some high hummocks. I tried to take some angles, but I cannot face the wind.

Sunday, 9th April.

Called the cook this morning at 5.40 A.M., and started at 9 A.M. exactly.

The way led across a pretty good floe running parallel to the high precipitous cliffs we were passing; the morning was misty, with a gentle breeze from the southward, which induced us to make sail, but it soon after died away.

Coppinger's crew were much more cheerful this morning, evidently the result of returning strength and a good night's rest, and as the mist cleared away and the sun came out, we began to experience the exhilarating effects of this splendid climate.

Though the road was not good, yet we made fair progress, and there were no signs of distress.

We stopped for lunch at 1 P.M. for an hour and a half, and that evening camped at the entrance of Wrangel Bay, having been amongst heavy hummocks the last few hours, and with the prospect of heavy ice for the morrow.

Started 9 A.M.
Camped 6.50 P.M.
Lunch 1½h.
Marching 8h. 20m.

Wind.	Wr.	Ther.
S. 2	b.m.	−31°
,,	b.c.	−23°
Calm	,,	−31°

Dist. trav. 6m.
,, made gd. 6m.

Monday, 10th April.

Started at 9 A.M. Up to this time we had found the track of the dog-sledge that had passed about a week before a very good guide, but here we lost it, and no wonder, for the confused mass of hummocks before us presented nothing but points and sharp edges, and for our slow and heavy sledges pickaxes had to clear the way. This made the progress so slow that I determined to strike in for the land.

On the tidal ice outside the barrier of floebergs we found the tracks of the dog-sledge, showing that they too had avoided the wilderness of hummocks outside; unfortunately for us, recent high tides prevented our following this generally good route, and we were obliged to haul the sledges over the barrier of stranded ice on to the land-foot inside; this we found to be a road about 30 feet broad, between the steep talus of the cliff and the high wall of stranded ice. The snow was rather soft from being so sheltered, but it seemed far preferable to the hummocks; so as soon as the sledges were up we started again.

The wind blew down this narrow passage with a stinging freshness that made luncheon quite a trying halt.

After lunch we found that the road became so bad that we could no longer follow it. The land-foot naturally partakes of the character of the shore, and very much also of the wall of ice that is raised along the shore by the pressure from without; where this wall is high, even if the shore is steep and precipitous, sufficient snow fills up the angle to make a good road, but when a gap occurs in the wall, or it is absent altogether, the snow forms a continuous slope to the floe, or ends abruptly in a drop of from 5 to 30 feet on to the ice. This was what occurred to-day, for after advancing along slopes so steep that we were obliged to cut a trench for the inside runner to keep the sledge as level as possible, and also from sliding down, we came to an impassable slope with no parapet, and had, after unloading, to lower both sledges and crews down on to the floe 25 feet below.

This caused a great delay, but later on in the afternoon we got on to a large old floe, and making sail to a strong fair wind, we almost made up for lost time.

We camped at 8 P.M., at the end of the old floe; blowing fresh, with a good deal of drift.

I am glad to say that the men are better altogether, more able to do the work, although to-day has been a hard one.

Started 9 A.M.
Camped 8 P.M.
Lunch 1½ h.
Marching 9½ h.

Wind.	Wr.	Ther.
S.E. 2	b.m.	−17°.
S.E. 3	b.c.	−14°.
S.S.E. 2 to 6	b.c.q.	−7°

Dist. trav. 8m.
,, made gd. 6m.

Tuesday, 11th April.

Started 9.50 A.M.
Camped 7 P.M.
Lunch 1 h.
Marching 8h. 10m.
Wind. Wr. Ther.
Calm b.c. −14°.
" " −11°.
In tent + 5°.
Dist. trav. 6½m.
" made gd. 6½m.

We were all so tired last night that for the first time out we slept soundly. I did not wake up until 7 A.M. Started at 9.50 A.M.; dull and snowing; the wind that had been blowing all night had died away. The way led over a very rough pack, and entailed so much labour and road making, that I halted the party for half an hour whilst I went to the land, about a mile off, to see if we could get on to the land-foot, and three other parties started in other directions to try and hit upon a floe, for it was so thick we could not see above a hundred yards.

I found the land-foot much too steep for travelling, and as the other explorers were not more successful, we made the best of it, and toiled on. At 1.30 P.M. we reached a small floe and had lunch; still very thick, but no snow.

During the afternoon it cleared up, and we saw Cape Frederick VII and Lincoln Bay ahead; after another heavy bit of pack we got on to a good sized floe; we had crossed it by 7 P.M., and finding that the ice ahead was heavy, we camped. I looked in vain for the depôt in Lincoln Bay, but I could not see it; I suppose we were still too far off.

Wednesday, 12th April.

Started 9.25 A.M.
Camped 7.0 P.M.
Lunch 1 h. 10 m.
Marching 8h. 25m.
Wind. Wr. Ther.
Calm b. −21°
" " −19°
" " −21°
In tent −5°.
Dist. trav. 6½ m.
" made gd. 5½ m.

Started this morning at 9.25 A.M.; cold and fine; my intention was to examine the depôt which was on the other side of the bay; I thought I saw a good line of floes, but we found as we reached them that they were covered with soft snow, that made dragging very heavy work, to say nothing of the barriers of hummocks being bigger than usual. However, by lunch time we had got well into the middle of the bay, and during the afternoon march I was able to pick out a better though a roundabout road. The day was a trying one to me, as it was exceedingly bright, and the constant strain on the eyes in trying to distinguish the good leads dazzled them so that by 5 P.M. I had to put on spectacles, and fall into the drag ropes, and for the remainder of that and the next day I was very uncomfortable, not being able to see without pain.

We reached the land just beyond the depôt, which was rather difficult to find, as it was almost covered with snow, but was all correct. We read the records at the cairn, and leaving a notice of our visit, we followed the sledges, which had gone on.

We caught them up by 7 P.M., and camped, having nearly reached the northern extremity of the bay.

Thursday, 13th April.

Started 9.30 A.M.
Camped 10 P.M.
Lunch 1 h. 20 m.
Marching 10½ h.
Wind. Wr. Ther.
S 1. b.c. −21°
" " −24°
" " −27°
Dist. trav. 9 m.
" made gd. 8m.

6.20 A.M., called the cook, but he was a long time getting ready, so we did not start until 9.30.

Our way lead along the shore for about three miles; the travelling was good and we got on well, but we soon came to another line of steep cliffs; thinking that the land-foot, though promising, would not prove to be continuous, and that we might be delayed in getting off it, we turned off on the floe at once, and worked our way up along about half a mile from the shore amongst some easy hummocks.

After lunch we gradually got into such a close pack that we could not make any progress, and reluctantly turned towards the land.

We found the icefoot practicable, and followed it as far as we could, but we had evidently reached a point in the coast subject to great pressure from the ice, which was not only piled to a great height along the shore, but extended in one confused mass of broken fragments and huge hummocks as far as we could see; slowly we worked our way through this.

A peculiar dip in the line of cliffs seemed to us to answer to the description of Arthur's Seat, in which case the point ahead was Cape Union.

By camping time we were still in such a wilderness of hummocks that we could not pitch the tents, but had to push on after serving out a ration of tea. At 10 P.M. we reached the edge of a small floe, and were glad enough to pitch the tents for the night.

Friday, 14th April.

Started 11 A.M.
Camped 8.45 P.M.
Lunch 1¾ h.
Marching 8 h.
Wind. Wr. Ther.
Calm b c. −21
" c. −19°
N.E. 2 to 4 } o. − 27°
Dist. trav. 8 m.
" made gd. 7½ m.

After our long day yesterday, we were very late, and did not start until 11 A.M. The day was fine but not clear, and a wild look about the sun betokened wind. We were still amongst very rough ice, and were making so little progress that I determined to close the land, for the pack looked very heavy ahead.

For the last two days there had been a fringe of heavy ice along the shore, which made it necessary to adhere either to floe or land-foot on account of the risk and loss of time in crossing; this we crossed after two and a half hours' work, and having got both the sledges safely on to the land, we left the men preparing luncheon, while Dr. Coppinger and myself walked on to examine the road, which we were glad to find was comparatively good. On getting back to the sledges we found that Coppinger's

crew had not had their tea, owing to a delay caused by the leaking of the kettle; it was one of the altered ones, and the solder round the centre funnel had melted.

In consequence of this it was 4.30 P.M. before we started again; but the road being good we made fair progress, and towards evening expected to come across some traces of the "Alert," as I thought we could not be more than 10 or 12 miles off.

A light breeze that had sprung up in the afternoon was now increasing fast, and blowing in our faces made it seem very cold. I was very anxious to reach a well sheltered place, as I expected a rough night; but not finding anything suitable by 8.45 P.M., I camped under the lee of some grounded floebergs, glad to get out of the strength of the wind, but unable to escape the driving snow which whirled every where and filled everything.

Saturday, 15th April.

This morning everything was quite ready for packing up, when I most unwillingly came to the conclusion that the wind was much too strong, too cold, and the drifting snow too blinding to make any progress.

I had been very cold in my bag all night, but during the long tedious day that ensued it was much worse; the wind increased in violence in the forenoon, and the temperature in the tent during the day varied from —24° to —29°.

We had our meals regularly, and tried to sleep, but in vain; and I determined that as soon as it lulled sufficiently we should start.

By 11.30 P.M. the wind had gone down enough; so we started; temperature at the time — 31°, and a good deal of snow still drifting.

Started 11·30 P.M.
Wind. Wr. Ther.
N.N.E. 6 to 7 } o.s.q. —29°
,, ,, —24°
2 to 4 ,, —31°
Dist. trav. 1½ m.
,, made gd. 1½ m.

Half-a-mile from our camp we came upon a record tied to a staff and a tent; the record informed us that this spot we had reached was Black Cape, distant four miles from Cape Rawson, and seven miles from the "Alert."

Sunday, 16th April.

Though I was rather disappointed to find that we were not nearer our journey's end, still it was some consolation to know where we were, and how far we had to go, and I decided to push on at once lest we should be detained again by the wind.

Afraid that the men might become tired working too long without food, I looked out for a sheltered spot to stop and have breakfast, and finding nothing better stopped under the lee of some big floebergs for that purpose.

This halt was a most trying one, for it was still blowing fresh (temperature — 28°), and the drifting snow eddied into every corner; the strong head wind had kept us cold in spite of the heavy dragging, so that waiting for over an hour for breakfast very nearly froze us, and we were very glad when we started again.

The dragging was heavy, because about six inches of fresh snow had fallen or been blown over the road; at any other time it would have been warm work, but — 35° and a head wind kept us cool enough.

Started 11.30 P.M.
Marching 13½ h.
Wind. Wr. Ther.
N.E. 2 to 4 } b.c.q. —31°
,, ,, —35°
,, ,, —30°
Dist trav. 7½ m.
,, made gd. 7 m.

We got past the Cape Rawson slopes without difficulty, and reached the "Alert" by 10 A.M., where we received a most warm reception from Captain Nares and all on board.

No change was made in the dress worn by the men at starting during this journey. The holster or bag-mitts were only used in a cold wind.

Weight dragged per Man on leaving "Alert."

CHANGE IN EQUIPMENT.

No.	To be Added.	lbs.	oz.
1	Tent	39	0
1	Cooking stove	28	0
1	Saw	1	8
8	Pairs travelling boots ..	4	0
		72	8
	To be Deducted.		
1	Tent	31	0
1	Coverlet	19	0
	Set Sledge clips	4	4
		54	4
		72	8
	Total to be added ..	18	4

	lbs.	oz.
Original constant weights ..	649	4
To be added..	18	4
Constant weight	667	8
Provisions, 268 rations, at 3 lbs. per ration.. ..	804	0
Weight of packages for depôts, &c.	60	0
Total weight..	864	0
Constant weight	667	8
Grand total ..	1,531	8

$\frac{1531}{7} = 218$ lbs. per man.

Weight dragged per Man on leaving Repulse Harbour.

	lbs.	oz.
Provisions, 283 rations at 3 lbs. per ration ..	849	0
Packages..	60	0
Total weight of provisions and packages ..	909	0
Constant weight..	667	8
	1,576	8

$$\frac{1,576}{7} = 225\tfrac{1}{2} \text{ lbs. per man.}$$

Thursday, 20th April.

See page 338.

Having received full instructions as to my future proceedings from Captain Nares, and the whole party being thoroughly rested and in excellent health, we started from H.M.S. "Alert" at 7.30 P.M., on the 20th of April, everyone on board turning out to give us three cheers.

In accordance with the plan of exploration decided upon, we started with the addition to our party of Lieutenant Rawson and his crew, manning two 5-man sledges instead of one 8-man.

The arrangement of the crews was as follows:—

(8-*man*), "*Sir Edward Parry.*"

1. Alexander Gray, Ice Quartermaster, Captain of sledge.
2. William Jenkins, Carpenter's Mate.
3. Wilson Dobing, Gunner, R.M.A.
4. Peter Craig, A.B.
5. James Hand, A.B.
6. Charles W. Paul, A.B.
7. Frank Jones, Stoker.

(5-*man*), "*Discovery.*

1. George Bryant, Captain Maintop, Captain of sledge.
2. Elijah Rayner, Gunner. R.M.A.
3. Michael Regan, A.B.

(8-*man*), "*Stephenson.*"

1. Jeremiah Rourke, Leading Stoker, Captain of sledge.
2. David Taws, Ice Quartermaster.
3. George Leggett, Acting Ship's Cook.
4. James Cooper, 2nd Captain Maintop.
5. John Hodges, A.B
6. Benjamin Wyatt, A.B.
7. Thomas Darke, Private, R.M.L.I.

(5-*man*), "*Alert.*"

1. George W. Emmerson, Acting Chief Boatswain's Mate, in charge.
2. George Stone, 2nd Captain Foretop.
3. Alfred Hindle, A.B.
4. Thomas Chalkley, A.B.

Started 7 P.M.
Camped 10 P.M.
Marching 3 h.

We left the "Alert" with almost empty sledges, as it had been arranged that we should fill up our provisions from the Cape Rawson Depôt. We arrived there at about 9. P.M., but owing to some mistake in marking the cases, we were unable to find those

intended for our use. As it would have been impossible to make sure that we had the right quantity without further inquiry, I ordered the party to camp while I walked back to the "Alert." My crew had no tent, as we had left intending to pick up the tent at Black Cape, on account of its extra size; so I sent four of them for it before I left, and distributed the remainder amongst the other tents. I got back to the "Alert" by 12 P.M., and having found the mistake, I returned to the sledges early next morning with George Bryant, Captain Maintop.

Wind. Wr.
N.W. 2 b.c.
" 3·2 c.
o.c.
Dist. trav. 3 m.
" made gd. 3 m.

Friday, 21st April.

As soon as we got to the camp, Bryant and myself set to work and sorted and unpacked the whole of the cases; we then weighed and measured the provisions for the different sledges.

12, Captain Nares and Lieutenants May and Rawson arrived, bringing some additional charts and papers for our guidance.

After lunch the sledges were packed, and Lieutenant Rawson and Dr. Coppinger being ready, the one went on to Black Cape, while the other stopped to fill up with bread at the Snow House Depôt.

4.30 P.M., started with the two last sledges for Black Cape.

With the full load now the sledges look very clumsy, and are very heavy, and with the loose snow that has fallen in the last few days, makes it very slow work. By 7 P.M. I had reached the Snow House, having left Emmerson and his party far behind; here I found Coppinger's crew having lunch; so we halted too, and while lunch was preparing I walked on to Black Cape, to bring Rawson and his men back to the assistance of Emmerson, who was still far behind; coming back we met Coppinger and his party trying to get his sledge past the deep sastrugi just beyond the Snow House; but finding that even with our assistance the sledge was too heavy, I took everyone back with me to where I had left my sledge, and whilst Rawson and his three men undertook to get Emmerson up, we, with the two crews, took the sledges one at a time on to Black Cape.

Started 4.30 P.M.
Camped 12 P.M.
Marching 6½ h.

Wind. Wr. Ther.
N.W. 4 to 5 } c.q. −21°
N.W. 5 " −27°
" 3 " −35°
Dist. trav. 6 m.
" made gd. 4 m.

A sharp N.W. wind was blowing at the time, and there was a good deal of drifting snow, which made returning against it for the sledges most painful; though I do not suffer from the cold as much as some, yet I never felt such an icy wind as that was, and most of the men were frost bitten on the nose or cheeks.

In getting Dr. Coppinger's sledge over one of the steep slopes, it took charge, and jammed John. Hodges, A.B., against a snow bank, luckily with no worse consequence than bruised ribs.

Lieutenant Rawson and his men showed us what they had learnt to do on board the "Alert" by getting Emmerson's sledge almost the whole of the way by themselves.

By 12 o'clock we were all assembled at Black Cape, and as the day had been a hard, although a short one, and the night before very broken rest, I determined to camp, and leave the attack on the hummocks for the morrow.

Saturday, 22nd April.

Called the cook at 11.30 A.M., and started at 2 P.M. It was still blowing, but much brighter than it had been for three days past; thermometer—35°.

As Rawson was ready first, he went on with the 5-man sledges, taking them through one at a time with both crews. In the meantime the heavy sledges were ready, and with both their crews we took one sledge carefully across the fringe of heavy hummocks which extends for three quarters of a mile from the coast, and then came back for the other.

Although a road had been made by Captain Nares' direction almost the whole of the way, yet the inequalities were still so great that the utmost care and management could not prevent the heavily laden sledges from taking charge and having several heavy falls; it was a wonder to us then, and many times afterwards, that any sledge should have stood such severe shocks, and I was not surprised that one of the more lightly built 5-man sledges gave way.

As we were not more than 8 miles from the "Alert," I decided to send it back and exchange it, so leaving all the gear on the floe, Lieutenant Rawson and Thomas Chalkley started back for the ship, whilst Dr. Coppinger and myself went on with the three remaining sledges.

Lieutenant Rawson in his previous journey to Greenland had left a flag to mark the

Started 2 P.M.
Camped 12 A.M.
Lunch 1h.
Marching 9 h.
Wind. Wr. Ther.
N.N.W. 3 to 4 b.q.m. −35°
" " −24°
N.W. b.c. −21°
Dist. trav. 5m.
" made gd. 2m.

end of a very large smooth floe, which lying in the required direction offered us great help in travelling. This we were striving to reach, but owing to the driving snow and lowlying mist, it was not until late in the afternoon that we succeeded in seeing it.

We had halted for lunch at 6.30 P.M., and had gone on again at 7.30, working through and around numerous belts of hummocks, until we eventually reached the flag on the big floe at 12 A.M., Sunday, the 23rd.

I had left Emmerson's crew (4 men) and Rawson's (2 men) behind at the lunch camp, with orders to go back and bring the new sledge up, as I knew that if Rawson had obtained the dogs to bring him down he would be back by this time.

Sunday, 23rd April.

Started 4.30 P.M.
Camped 12.40 A.M.
Lunch 1 h. 25 m.
Marching 6½ h.
Wind. Wr. Ther.
Calm b.c. −21°
−29°
−25°
Dist. trav. 6m.
" made gd. 6m.

Spent a very pleasant night, everyone slept well; called the cook at 1.30 P.M., and were ready to start by 3·45 P.M., but observing Lieutenant Rawson coming up with the two 5-man sledges, I sent our men back to help him in, and by 4.30 P.M. we once more started all together.

The morning was beautifully fine, hardly a cloud in the sky, and almost calm; our way led across the big floe, the edge of which we had reached the night before; it was not very even or smooth, but that was owing to its great age.

When we started each crew were dragging their own sledge, but we soon found that the 5-men sledges could not keep up especially Emmerson's, which was always far behind; though the weights had been calculated for three men, and they really had four, yet coming as it did so much more immediately on the men's shoulders, from the shorter drag ropes, made it much heavier and harder work; to make the weight dragged by each man more equal, I had a 5-man sledge lashed astern of each 8-man, and then combined the two crews, this had the advantage also of keeping the whole party together.

To find out our rate of travelling, I walked ahead and marked out half a mile, and timed the sledges whilst they were doing it; I found that we were marching a little over a mile an hour; this was dragging 200 lbs. over a smooth floe with about 6 inches of loose snow.

We stopped for lunch at 8.10 P.M.; the day was so beautiful that we really imagined it to be warmer than it was; my thermometer showed −29°. During lunch Rawson, who piched his tent for lunch and cooked with spirits inside, raised the temperature to −6°, but it causes too much delay for the 8-man sledges to unlash and pitch their tents, and is too luxurious.

We started again at 9.40 P.M., and marched on steadily until 12.40 A.M., when finding the two 5-man crews were very much done, as they had been at work since 2 P.M., I camped.

Whilst they were pitching, I walked up a rise to look for the flag which marked this end of the floe; after some difficulty I found it abreast of us; we were to the southward of the track, and still had about a mile of floe ahead of us.

Monday, 24th April.

Started 5.30 P.M.
Camped 2.40 A.M.
Lunch 1 h.
Marching 8h. 10m.
Wind. Wr. Ther.
S. 1 b.c. −2°
" " −20°
" " −17°
Dist. trav. 6½.
" made gd. 4m.

Started at 5.30 P.M.; we are gradually working round into night travelling to avoid the glare of the day, and to have the benefit of its heat while sleeping. It is a beautiful day, and I hope we are settling down to the work.

We reached the end of the big floe in about an hour, making its length as we crossed it about 7 miles, it must have been a very old one, for both in getting on and in getting off we found the difference of level from 10 to 15 feet. I left a flag on a staff to mark our track in case Emmerson missed his way on his return journey.

Worked in a ziz-zag way amongst the hummocks all the forenoon, not making rapid progress.

Stopped for lunch at 9.30 P.M., having had to double bank several times; the small sledges follow behind the big ones very well, but when we are double banking, that is all hands dragging the pair (8 and 5-man), they take such leaps and slides, and are so lively, that I am afraid we shall carry something away.

Started again at 10.30 P.M. and worked on to 2.40 A.M.; by which time we had reached and crossed a good sized floe. Camped as there was heavy ice ahead.

A most beautiful morning; not a cloud in the sky, and quite warm (temperature −14°). Both Greenland and Grant Land shores are quite distinct and clear. Took a careful round of angles, and a sketch of the Grant Land coast.

Tuesday 25th, and Wednesday 26th April.

Called the cook at 2.50 P.M. Started at 6.30. I felt very sleepy, as I had been up so long sketching, but the others had a perfect night, warm and comfortable.

We have hung our clothes outside for the last two nights, and to-day they are soft instead of being frozen; in a day or two more they will dry.

We began to-day by cutting a road through a stiffish barrier, which took nearly an hour, but as it led to a good floe it repaid us eventually. By taking a rather roundabout way we managed to avoid several lines of hummocks, and by lunch time had advanced two and a-half miles, and except in one or two cases without having to double bank.

We stopped an hour and a-half for lunch, and went on again at 12 A.M. The after lunch work was very much the same as before, except that we met with two accidents; in passing over a hummock, the "Alert," towing astern of the "Sir Edward Parry," took charge and ran one of its horns through the watertight depôt case; whilst I was still lamenting this unfortunate occurrence, the same sledge got jammed in a hole, and the towing rope getting over the horn, when the strain came on, it could not rise but broke the runner fairly in two; luckily we were close to a small floe, so unpacking we carried the gear and sledge to it and set to work to repair the damage. Meanwhile, the other sledges went on with Rawson, with orders to camp at 4.30 A.M.

It took some time to repair the broken sledge, as we had no tools but my knife and a snow-saw, and the wood of the sailing thwart was very hard; to save time I made Emmerson and his men camp where they were, so that by the time the sledge was finished they were nearly all asleep.

Jenkins the carpenter and myself walked on to our camp, which we found about one and a-half miles further on, on a small floe, and after supper turned in; a beautiful morning.

Started 6.30 P.M.
Camped 4.30 A.M.
Lunch 1½ h.
Marching 8½ h.

Wind. Wr. Ther.
South b.c. —14°
S.S.W. 2 to 4. b.c. - 15°
Calm b.c. —17°
Dist. trav. 5½m.
„ made gd. 4½m.

Wednesday 26th, and Thursday 27th April.

Called the cook at 2.40 P.M. I started for Emmerson at five, found him ready, so we started back and reached the camp by 6.30 P.M.; when we all started. I went ahead to find the way, which led over several large floes; good travelling. I noticed that some of them seemed to be of this year's ice, but what was most remarkable was that they had apparently formed undisturbed, and had remained intact ever since. It showed how quiet the large and heavy old floes must have been. These old floes were from 10 to 15 feet higher in level than the new, and the descent was quite abrupt.

I inferred from this that though the heavy old floes find their way over to this shore as everywhere else, they did not remain in motion late in the autumn, but set fast with the first frosts, probably owing to a slighter effect of tides and currents.

We got on very well before lunch, which occupied one and a quarter hours; the warmer weather is making a difference in the boiling of the water.

After lunch Coppinger showed the way, and we worked steadily on until we came to the end of the floes, and to a very heavy belt of hummocks.

We could see one of Rawson's flags away to the southward; and he said that though the way was a difficult one, yet it led to floes near the shore, and as it had the advantage of being known we started for it.

It was a long job, as we had to make a great deal of road, and in one place pass through a split floeberg, which only just admitted the 8-man sledge. We emerged on to a floe which seemed to go in to the very land, and feeling we had done a good day's work, we pitched the tents.

The day had been very fine, and the temperature rising, but a wind springing up as we camped bade fair to make it colder again.

Started 6.30 P.M.
Lunch 1¼ h.

Wind. Wr. Ther.
Calm b.c. —15°
„ — 5°
S.W. 2 to 4 „ —4°
Dist. trav. 8m.
„ made gd. 7m.

Thursday 27th, and Friday 28th April.

Started at 5 P.M., making for the shore in Repulse Harbour, at the point where Lieutenant Rawson landed before.

Reached the shore hummocks by 8 P.M., and set all hands to work to cut and make a road through the obstacles, which here consist of about 100 yards of hummocks, and a formidable barrier of stranded floebergs, enormous masses of solid ice, some of which stand 30 to 40 feet above the level of the floe.

Here we not only had to cut a roadway, but also to bridge over several gaps between these big blocks, and although there were plenty of hands, there were only 3 pickaxes.

Started 5h. P.M.
Camped 6 A.M.
Lunch 1 h.
Working 12 h.

Wind. Wr. Ther.
S.S.W.1 b.c. +5°
„ +3°
o. +6°
Dist. trav. 4½m.
„ made gd. 2½m.

By 11.30 P.M. however we had got the three sledges, "Sir Edward Parry," "Discovery," and "Alert," inside the barrier, leaving the 8-man sledge outside on the floe, ready to start on its return journey in charge of G. W. Emmerson.

James Hand, A.B., was the first to plant the Union Jack on the North Greenland Coast.

While the now reduced Greenland party were employed in pitching the tents, building a cairn, and establishing a site for the future depôt, the Captains of the sledges were busy, under my supervision, in provisioning Emmerson's party, and redistributing the remainder among the three sledges so as to equalize the weights. As soon as Emmerson was complete, his party camped on the floe, so as to be ready to make an early start, as I wanted them to travel with the sun at their backs. The Greenland party in the meanwhile finished the depôt and cairn, and after having packed the sledges ready for starting turned in for a rest.

Not Printed. I wrote to Captain Nares, informing him of our proceedings up to that date.

Friday 28th, and Saturday 29th April.

At 11.30 A.M., having shown G. W. Emmerson the cairn and position to be occupied by the depôt, I started him off on his return to the "Alert," with orders to follow our tracks as far as it was possible, as the weather had suddenly become very thick, with snow falling.

I had intended starting at 5 P.M., but it is a difficult thing for the officer, who has most to do of anyone, and often is up or writing half the time that his men are asleep, to make sure of waking at the right time, and I did not; however, we were away by 7 P.M.

Started 7 P.M.
Camped 4.30 A.M.
Lunch 1 h.
Marching 8h.30m.
Wind. Wr. Ther.
Calm o.s. +9°
" " +10
" " +14
Dist. trav. 6m.
" made gd. 4½m.

The way led round Repulse Harbour in a north-easterly direction; as it exists now the harbour or bay is not more than half a mile deep, and even this slight indentation is shallow, as shown by the gounded ice. But I can quite understand its being mistaken by the Americans, who saw it from the sea, for a fine bay, for the background of hills which appears to form its boundaries must be nearly 3 miles broad by 1½ deep, and it is quite easy to mistake the level snow-covered floor of this dry bay for a floe.

The sudden change in the weather has made it much warmer, but the impossibility to see more than a mile ahead is very annoying, especially as we are on new ground.

We quite enjoyed our lunch to-day, as it was not too cold to sit down, and tea is made fast enough now to allow of the bacon getting about two minutes' cooking; this used only to thaw it before, but to-day it fried it; this luxury must be enjoyed to be appreciated.

We have been travelling all day along the coast, and after lunch not only passed the furthest reached by Lieutenant Rawson in his previous visit with the dogs, but got beyond on to such furrowed and uneven snow that we had to double bank to make any progress; these sastrugi, the result of the prevailing winds, are so hardened that a sledge slides down off one and buries its horns in the next, where it remains firmly fixed until hauled backwards or dug out. After about 2 miles of this we were glad to camp.

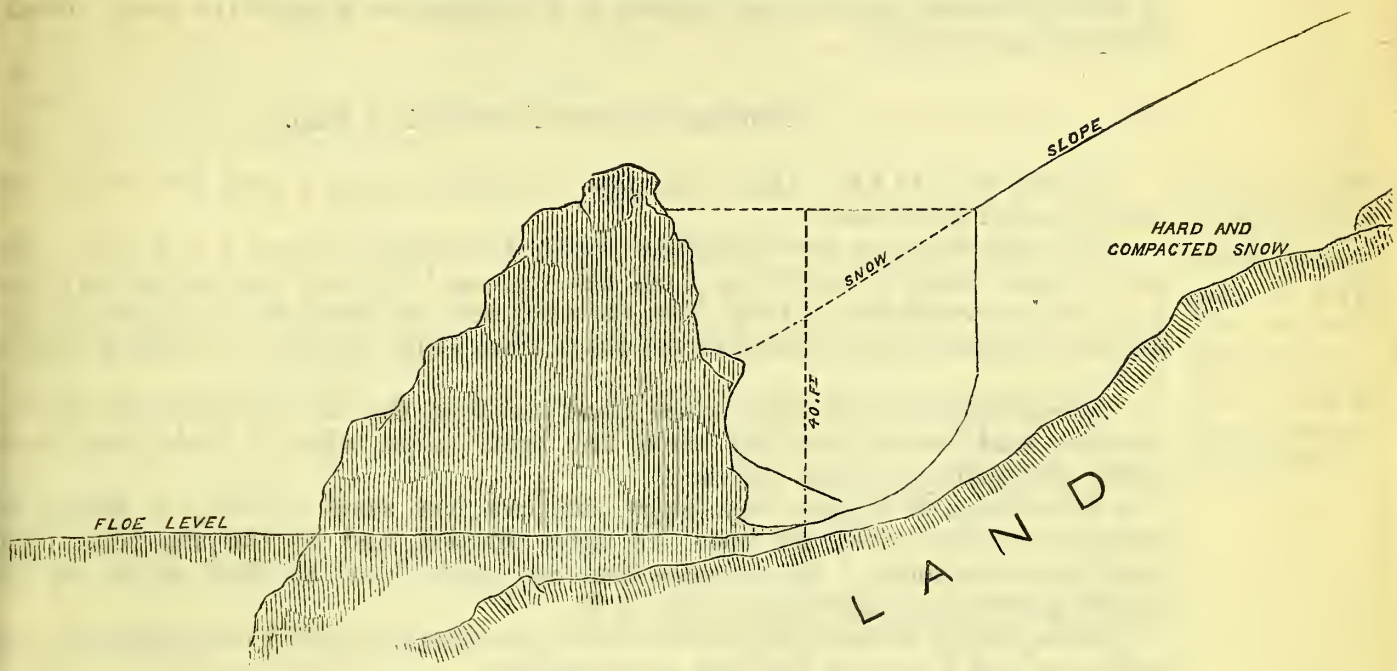
Saturday 29th, and Sunday 30th April.

Started at 6.30 P.M.
Camped 5 A.M.
Lunch 1¼ h.
Marching 9h. 15m.

Started at 6.30 P.M. Still thick and dull but not snowing. Travelling along the land inside the floebergs. Heavy ice outside; inland the hills are not so high or near the shore as they have been.

At 10 P.M. we reached a point which brought us to a standstill at the edge of a pit, about 40 feet deep from its highest point, and with precipitous sides. It had been formed by the wind eddying round the huge mass of ice piled on the point; a section showing the point at right angles to our line of march would appear thus:

ROUGH SKETCH SHOWING SECTION OF DRIFT-POINT.



There was no other way of passing this than climbing up round it, and as the snow was hard and slippery this was not easy to do; by partly unloading the big sledge we lightened it sufficiently to haul it round by standing pulls with all hands, and then got each of the 5-man sledges round in the same way, but this took a long time.

Wind. Wr. Ther.
Calm o.s. +11°
W. b.c. + 8°
Calm o.s. +12°
Dist. trav. 8m.
„ made gd. 3½m.

While this was going on, the Grant Land shore came into full view as far as Cape Joseph Henry, and we eagerly seized the opportunity to get a round of angles. Ahead of us on our side of the channel we could see a cape with a rounded peak above it, which we supposed to be Cape Stanton; shortly after this it came on quite thick again.

By lunch time we had worked our way along more than half a mile of snow slopes, very slow work, and trying to the temper, for it was very difficult to stand, much more drag the sledges, they slid down more than we could move them along, so every now and then it was necessary to have standing pulls up the hill to prevent them going over the edge of the slope.

An hour before camping, however, we came to a flat part and got on well for a mile, although the snow was very soft. We had to double bank the whole journey, as the exertion was too great for the single crews by themselves; they could not have worked so long or done so much.

Sunday, April 30th, and Monday, 1st May.

Called the cook at 3 P.M. Temperature in the tent + 28°. Double banked the sledges for a quarter of a mile, then singled banked for about the same distance, when we were stopped by a great snowdrift, beyond which there appeared to be no way for sledges; the land at a steep angle sloped down to the hummocks, which were not large or high, but much broken up and pressed close against the shore.

Started 6.30. P.M.
Camped 7 A.M.
Lunch 1½ h
Marching 7½ h.
Working 3½ h.
Wind. Wr. Ther.
Calm o.m. +8°.
„ „ +9°.
„ „ +3°.
Dist. trav. 3½m.
„ made gd. 1¼m.

We could not see far ahead, for it was too thick, so Lieutenant Rawson, accompanied by Dr. Coppinger, went ahead to see, whilst I set the men to work to cut a road inside and along the shore hummocks; as all the men could not work at once, and I knew we should be there for lunch, I pitched the tents and told them off in reliefs.

We had cut about 200 yards of road, when Rawson and Coppinger returned to say that the road became more and more difficult for nearly two miles, where it ended in high perpendicular cliffs, which as far as they could judge extended for some distance.

As it was impossible therefore to continue by the land, I sent the men to lunch, while I went up the hill to look for a road on to the floes.

From the hills I saw a good floe, apparently leading to others, and not more than half a mile from the land, but it was difficult to make anything out clearly as there was so much mist.

Immediately after lunch they set to work to cut a way through the shore barrier down to the floe, and then packed the sledges and started, whilst I went up the hills to try and see the best way for to-morrow, but again unsuccessfully. By camping time the sledges had reached the centre of the big floe, whilst I after another climb to the top of the hills saw enough to make a good start the next day.

Being obliged to leave the land is very unfortunate, as there is always the risk of the ice breaking up before our return, in which case we might have great difficulty in repassing the cliffs.

Monday 1st, and Tuesday 2nd May.

Started 6.40 P.M.
Camped 4.45 A.M.
Lunch 1¼ h.
Marching 8h.50m.
Wind. Wr. Ther.
Calm o.m. −4°.
„ o.m.s. −3°.
„ o.f.s. −3°.
In tent +15°.
Dist. trav. 5½m.
„ made gd. 5m.

Started at 6.40 P.M. Thick dull day. Travelling along a good floe, which runs nearly parallel to the land.

The cliffs which we saw yesterday appear to extend for about 3 or 4 miles; they are I should think from 900 to 1,000 feet high, and are steep and precipitous; there is no land or even icefoot at their base, the cliffs and the floe joining almost at right angles; we gave them the name of the Black Horn Cliffs, because of a black projecting rock.

We found most of the floes which I had seen from the hill yesterday, and it saved us much road cutting; we cut across two broad strips, which I hope may prove useful to Coppinger on his return.

After lunch it became very foggy, and we had some difficulty in finding the way, but we fortunately hit upon the right direction, and by camping time found ourselves at the end of a floe not more than 600 yards from the shore, which we had struck again about a mile ahead of the cliffs.

As my object in taking to the floe was only to pass the cliffs, I determined to land again now, and I hope we shall find good travelling.

We still find the sledges very heavy if the road is at all rough or hilly.

Tuesday 2nd, and Wednesday 3rd May.

Started 6 P.M.
Camped 5 A.M.
Lunch 1 h.
Marching 4 h.
Working 6 h.
Wind. Wr. Ther.
−5°.
S.W. 1 o.s. −5°.
In tent +12°.
Dist. trav. 5½m.
„ made gd. ½m.

Started at 6 this evening. Weather still thick, cold, and foggy; the ice was very heavy between us and the shore, but a small floe saved about 300 yards of road cutting.

It took two and a half hours to get the sledges on shore.

The landfoot where we landed appeared to be good, and we were congratulating ourselves on being out of the hummocks, when the left runner of Rawson's sledge gave way completely, making it necessary to stop, pitch the tent, unload and take the whole thing to pieces, when we discovered that three of the uprights, styles or poppets were broken short off; luckily we had enough to replace them, and having seen the carpenter's mate under way, I hurried after the other two sledges that had gone on.

Much to my disappointment I found them halted not more than a quarter of a mile off, at the commencement of a slope which was too steep for the sledges to pass. We set to work at once cutting a track, and I walked on to see how far it extended; some parts were not so bad, but more or less of a road had to be cut for a mile, and in some places the snow was so hard and slippery, that a road broad enough for the whole sledge had to be made. The men were told off in spells, as many as could work; the tents were pitched and the work hurried on.

Rawson and his men came up after lunch, having made a very good job of their sledge.

Coppinger started off for an exploring expedition over the hills, which were very steep; it was too foggy for him to see anything.

Wednesday 3rd, and Thursday 4th May.

Started 5.45 P.M.
Camped 7 A.M.
Lunch 2 h.
Marching 7¼ h.
Working 4 h.
Wind. Wr. Ther.
Calm o.s. −11°.
„ „ −9°.
„ „ −10°.
In tent +10°.
Dist. trav. 5½m.
„ made gd. 2½m.

Called the cook at 3.40 P.M.; we were all very sleepy and comfortable this morning. Still dull and foggy; started at 5.45 P.M.; temperature air,—11°. Double banked along the road we had made yesterday, and pushed on beyond it, cutting bits of road wherever they are necessary.

By lunch time we had almost reached a deep gorge or ravine in the hills to which I had walked the day before. Though flat for a little distance, I could see that the slopes commenced again on the other side of Stanton Gorge (as we called this place).

The men were much disappointed when we reached the slopes after lunch, and certainly it is very annoying, for we are hardly making any progress; but it cannot be helped; so we halted, set the road makers to work, and pitched the tents. I walked on to examine the ground with Dr. Coppinger, and found the slopes very steep (20° to 24°), hard and slippery, though here and there comes a flattish piece; yet we shall take a long time passing this, as the roadway must take the whole sledge.

Determined to see the end of this, we walked on, and reached what must be Cape Stanton, but everything is enveloped in a thick mist, and we cannot see much; there is evidently a bay beyond; we are about 2 miles from the tents; saw the track of a ptarmigan, the first sign of life we have seen.

Walked back, and sent the men to supper, they having done a long piece of road under Rawson's superintendence.

Thursday 4th, and Friday 5th May.

Started work this morning at 9 P.M.; a cold wind blowing, still dull.

I thought it was better to finish the road cutting from our present position, as we should not have advanced more than half-a-mile.

We have decided that Coppinger shall go back to-day, though his time is not up till to-morrow, but as Rawson agreed with me on leaving the depôt at Stanton Gorge, it was no use Coppinger's waiting. We therefore placed our three watertight depôt cases high up on the flat at Stanton Gorge, built a cairn, and having completed him with provisions and given him a letter for Captain Nares, he and his small party started amongst much cheering from both sides.

We have now 120 rations here in depôt, or 10 days for 12 men (our present number).

This ought to take us back past the Black Horn Cliffs safe to Repulse Harbour, it was better to be on the safe side.

The road makers came into camp at 2 A.M. for lunch, and at 3 having packed up we started, reaching Cape Stanton without further accident by 6.15; the morning was most beautiful; it had cleared up late last night, enabling us to get a very good round of angles both from Stanton Gorge and our present position (Cape Stanton). From an elevation of 700 feet we saw land far away in a north-easterly direction, and also saw that next march we should cross a fine bay, towards some low looking land, where I hope we shall find the travelling good.

Started 3 A.M.
Camped 6.15 A.M.
Lunch ½ h.
Marching 3¼h.
Working 5½ h.

Wind.	Wr.	Ther.
S.W.	o.m.	−12°.
3 to 4.	b.c.	−12°.
Calm	b.	−10°.

Dist. trav. 3m.
„ made gd. 2m.

Friday 5th, and Saturday 6th May.

Called the cook at 3.30.; started at 7. P.M.; crossed the bay about half-a-mile in from the entrance; on the opposite side the snow was very deep, and the progress consequently slow.

At the bottom of the bay is an immense mass of solid rock that looks very imposing. It is like a pyramid, and must be quite 1,000 feet high; we called it Rock Hill.

I stopped to get a meridian altitude, being the first time we had seen the sun for many days. Stopped for lunch at 11.30, and started again at 12.40; reached the shore after a hard pull through deep snow, and worked round the point.

This last part has all been double banking. We got a very good round of angles and sights for longitude. Camped at 4.30.

To interest the men more in the work, we drew lots as to whose name this bay should bear, and Hand won it.

Started 7 P.M.
Camped 4.30 A.M.
Lunch 1h. 10m
Marching 8h.20m.

Wind.	Wr.	Ther.
Calm	b.	−12°.
	c.	−13°.
	„	−9°.
In tent		+28°.

Dist. trav. 5m.
„ made gd. 4m.

Saturday 6th, and Sunday 7th May.

Fine evening, but a breeze and mist are coming up from the south. Started at . P.M.; good travelling inside the line of shore hummocks, but occasional patches of deep snow; the hills inland sloping and low, and no high background.

About 9 we came in sight of a fine bay, appearing as if it was only one year's ice, it was so smooth and unbroken.

The floebergs on the shore outside are enormous, and there is evidence of great pressure.

We decided to cross it just inside the line of heavy hummocks about the entrance.

The snow on it was deep, making the dragging hard work, and showing that its smoothness was not due to its being one year's ice.

In fact I think it must be a very old floe, for during lunch after digging down through ½ feet of snow we came to the ice which was *fresh*, from 3 to 4 inches down.

It is a beautiful looking bay, and as we all agreed would make perfect winter quarters *if* a ship could only get into it. After lunch we pushed on and reached the opposite shore. The bay is about 3 miles broad.

Started 6 P.M.
Camped 6.30 A.M.
Lunch 1h. 30m.
Marching 11 h.

Wind.	Wr.	Ther.
S. 1 to 2	c.m.	−1°.
„	b.c.	−4°.
S. 3 to 4	b.c.	+3°.
In tent		+22°.

Dist. trav. 6m.
„ made gd. 5m.

We tried to round the point, but it was too steep, and the snow too slippery, so eventually had to go right over the top; this meant standing pulls for an hour, and coming at the end of the march it quite broke down one or two of the men.

J. Hand, A.B., has been complaining of stiff and sore legs since yesterday; he finds the deep snow very trying; in fact so many appear to be overworked that both Rawson and myself deem it necessary to have a day's rest, and we have agreed to remain in camp to-morrow.

I examined Hand's legs after supper, they appeared to be bruised; he is going to use liniment.

Sunday 7th, and Monday 8th May.

This was to be our day of rest, so we had a good long sleep.

I examined Hand's legs after breakfast; the marks are getting bigger, and from his description of the pain I am afraid it is scurvy; he says that they are bruised from falls, he thinks he is a little better this morning. George Bryant, Captain Maintop, also complains of stiffness at the back of his knees, as he says. Rawson does not agree with me as regards scurvy, as they were all told on board the "Alert" to expect stiff and sore legs. Employed myself working out sights and making a track chart of our journey so far. Took a meridian altitude.

To-day a bird passed over the tent, we saw its shadow, but no one saw the bird. I hope we shall be able to make up for this delay. I feel very impatient, sitting here doing nothing.

Monday 8th, and Tuesday 9th May.

No one cared for their pemmican at breakfast, after an idle day yesterday.

Paul has been very sick during the last few hours, and feels faint and wretched now. Hand is making a courageous effort to appear all right, but he evidently limps about in pain.

I am much afraid that I am right with regard to the scurvy; Rawson also tells me that Bryant's legs are only stiffer for the rest.

Jenkins also complains of his hamstrings.

Started 6.30 P.M.
Camped 4.30 A.M.
Lunch 1½ h.
Marching 8½ h.
Wind. Wr. Ther.
S. 3 to 4 } b.o. +2°.
" b.m. +3°.
S.S.E .2 o. −1°.
In tent +30°.
Dist. trav. 6½m.
" made gd. 5¾m.

However, we started at 6.30 P.M., following the shore line; flat, with soft snow, the land low and no background. There is a strong wind blowing from the south, bringing quantities of willow leaves, which shows that the ground is bare of snow somewhere not far; we passed two shallow bays during the march, and stopped for lunch beyond the second.

The land all round, which consists of low rounded hills, appears to abound with vegetation as, wherever there is a bare patch it is covered with willow and saxefrage, this no doubt supplies the food for the hares and birds whose traces we have found in several places.

Hand looks disconsolate, as he finds he can't work now if the snow is at all deep; it takes him all his time to get his legs in and out. I have asked Alexander Gray, Ice Quartermaster, what he thinks, and he says, scurvy. I was sure of it, but he adds that in whale ships men often get over it, work it off, especially if it comes out to the surface as it is doing in Hand's case. I hope this may be true. Alexander Gray saw a white owl during lunch time, the first living thing seen this year.

Our march after lunch was a dull one; this southerly wind that has been blowing so long has brought up a very cold mist. I am much struck by the difference in the character of the country since we passed Rock Hill in Hand Bay; these are all round undulating hills and downs not more than 500 feet, but we are approaching a good high mountain which we saw this morning.

We camped at 4.30 A.M., having had some hard work in deep snow towards the end of the march. I am much perplexed with regard to Hand, as if he is not going to get better he ought not to be taken any further on. Paul still feels sick and short of breath, but that is from a bad attack of indigestion, nothing more. The rest of the men are better. Gave Paul a Dover's powder.

Tuesday 9th, and Wednesday 10th May.

Started 7.30 P.M.
Camped 12.30 A.M.

Started this evening at 7.30 P.M.; fine, but fresh breeze from southward; the road is flat and good, if it was not for the deep snow. Paul is better to-day, but Hand is

stiffer and more depressed in spirits; the discoloured patches on his legs are bigger and more numerous.

Halted after 5 hours' marching.

I think his case unmistakable scurvy, and as it is getting steadily worse, I don't feel justified in taking him any further; it is an immense loss to me, and will greatly diminish the success of our expedition sending Rawson and his men back, but it is unavoidable. Poor Hand has now to leave the drag-ropes when we come to the deep snow, as he can only get through very slowly.

Wind. Wr. Ther.
S. 2 b.c. +4°.
S.S.E. b.c. +8°.
2 to 4 b.c. +9°.
Dist. trav. 3½m.
„ made gd. 2¾m.

Since we started we have been travelling along the shore. Rawson and I went up what we call the Downs, and got a very good round of angles; we have reached and crossed the mouth of an old river or torrent, but so deeply covered with snow that we had to double bank the sledge. Now we are camped for lunch; Rawson and I have talked over our present situation, and he agrees with me; he is quite ready to take Hand back, as he always is to do what is right and his duty; but I feel what a disappointment it must be to him.

We have decided to pitch the tents and camp here; and while George Bryant and Alex. Gray, the two Captains of the sledges, are dividing the provisions and preparing for the separation, we are to walk to the top of the mountain about 4 or 5 miles off.

Taking a gun and a pemmican chopper, we started off, and after a brisk walk reached the top of Mount Wyatt, as I called it in honour of Rawson's furthest, in 4½ hours (or by 6.30 A.M.), the barometer showing the height to be 2,050 feet.

We had an extensive and splendid view of a new country in a north-easterly direction, and were able to connect it by a round of angles to the Grant Land side, which we could just see sufficiently distinctly.

The new discoveries consisted of what appeared to be an island from 40 to 50 miles off, and a distant point of land overlapped by a nearer or second one, the nearer point evidently formed part of the general coast line, which appeared very much cut up by fiörds.

To the eastward of a line adjoining the coast near where we stood with the distant island, the floe seemed quite smooth, whilst the rough Polar pack lay to the westward, and beyond. Inland a chain of high land about 5 miles off lay parallel to the coast, conspicuous amongst which was Punch Mountain.

It was blowing very hard (7 to 8) on the top, and the cold was intense, so we were glad to hurry down, and by 9.30 had reached the camp, where we found them fast asleep.

Wednesday 10*th, and Thursday* 11*th May.*

I called the cook at 7 P.M. I assembled the men and explained to them the necessity, which I very much regretted, of having to send part of our party back, and called upon them to tell me honestly if they suspected themselves of having scurvy; they all of them said they felt perfectly well and very anxious to go on; so it was finally arranged that Hand alone should go back with Rawson. I did not take one of his men because I did not like Bryant's symptoms.

Started 2 A.M.
Camped 6 A.M.
Marching 4h.

Wind. Wr. Ther.
S.E. b.c. +8°.
„ b.c. +5°.
„ b.m. +12°.
In tent +28°.
Dist. trav. 3½m.
„ made gd. 3½m.

I wrote orders for Rawson, directing him what to do; wrote to Captain Nares in case he went to the "Alert," and having seen that the provisions were correct for both parties, the tents were struck and sledges packed.

Everything was ready by 2 A.M. (11th May), and with many good byes and good wishes, we separated; it would be a difficult thing to say which regretted it most.

We travelled onward along the coast for 3 miles, and then so as to keep to night travelling we camped at 6; the men are in good spirits, and Paul is almost all right.

Took sights for chronometer.

Thursday 11*th, and Friday* 12*th May.*

Called the cook at 3.45 P.M., and started at 6.45; a very dull day and no wind, looks like thick weather; I hope it wont be, as a great deal depends upon our being able to see far, now that we are such a small party. I am glad to say that Paul is all right, and all the men appear in good health.

Started 6.45 P.M
Camped 5.30 A.M.
Lunch and forming depôt, 3 h.
Marching 7¾ h.

The travelling is heavy on account of loose snow; we are still following the coast line, with nothing but the same low land ahead; but by 9.30 P.M. we reached a turn which brought us in sight of the bays and fiörds which we had seen from the top of Mount Wyatt.

Wind. Wr. Ther.
S. c. +10°.
o.m. +12°.
o.f. +14°.
In tent +25°.

Dist. trav. 6 m.
„ made gd. 5½ m.

As we were now within the boundary of what had looked like a good floe, I decided not to waste time in following the land, but to strike from point to point; and as we were bound to return to this place, Cape Bryant, I halted for lunch, unpacked the sledge, and made up a depôt, in order to lighten the sledge as much as possible; I felt that if we were to do anything single-handed as we were in this wide field before us, it could only be by travelling quickly, and the men were quite ready to assist by doing without their knapsacks. Having secured the depôt, had lunch and repacked the sledge, which now looked much more manageable, we again started, steering for a cape which appeared to be the western corner of a deep fiörd.

Though so smooth looking, the floe was really a succession of undulating blue-topped ice, and very slippery; however we got on very well, and camped at 5.30 A.M., under the cape, which I called after Lieutenant Fulford, of the "Discovery."

It had been foggy ever since lunch, lifting at intervals enough to see the land.

Gave Paul a chalk powder, which I hope will put him quite right. The men have worked well to-day.

Friday 12*th, and Saturday* 13*th May.*

Started 6 A.M.
Camped 4 P.M.
Lunch 1 h. 20 m.
MarchingSh.40m.
Wind. Wr. Ther.
W. 3 to 4 b.c. −1°
S.E. 2 m.f. −5°
Calm b.c. +1°
In tent +14°
Dist. trav. 9 m.
„ made gd. 9 m.

I went out at about 11 A.M., and saw a bright parhelion with a curious band of white light, like a parallel of declination, passing through the sun; called the cook at 2.40, and started at 6 A.M.; the day was bright, but a low lying mist still obscured much of the land, particularly the fiörd, the end of which I could not see.

The travelling is very good, such as we have never had before, hard snow, and smooth enough to enable us to drag steadily on without interruption.

The sun coming out quite clear drove away the mist, and I saw right down the fiörd; there was land visible across the end; so concluding that it was only a deep inlet, I did not deem it necessary to examine it, but kept straight on for the point opposite to Cape Fulford. I called the fiörd St. George Fiörd, and the point we were steering for Dragon Point.

I took the midnight meridian altitude while we stopped to lunch.

Started again at 12.20, and got on very well.

Now that we can see down the fiörd it is curious how much alike the cliffs on the two sides are, every bend and every curve on one side has its counterpart on the other, so that it looks as if they had only lately been split asunder. Just before camping time the sun was hidden by clouds, and almost immediately a thick mist obscured the land; we camped in the midst of it at 4.30; but shortly after the mist blew away and revealed the land at Dragon Point about one mile off. We are again in deep soft snow, but it has been a good march.

I took a round of angles and sights for longitude.

The men are in good health and spirits.

I have discarded moccasins and taken to boots.

Saturday 13*th, and Sunday* 14*th May*

Started 6.30 P.M.
Camped 5 A.M.
Lunch 2 h.
Marching 8½ h.
Wind. Wr. Ther.
Calm o.m. +8°
„ o.h. +9°
„ „ +11°
In tent +23°
Dist. trav. 9m.
„ made gd. 7½m.

Started at 6.30 P.M.; a dull cold feeling day; we made straight for the shore, but the snow was deep, and it took us an hour to reach it; we crossed the point, which is a low one, and opened out more fiörds and bays.

It was difficult at this point to decide upon the course to pursue, for though I did not like to pass by such large and important openings as these we saw before us, yet I felt it would be a great waste of time if they turned out to be bays only, and I was very anxious to reach the nearest of the two points which I had seen from the top of Mount Wyatt. I expected from the top of Mount Hooker, its extremity, to see a large extent of coast, and to obtain considerable information regarding the nature and trend of the land and outlying islands. Eventually I decided to look into the different openings to make sure they were not a through channel, steering from point to point with the ultimate object of reaching Mount Hooker; so accordingly we started for a point which I called Cape Cleveland, as it appeared to be the corner of a fiörd.

On our way we passed some very extraordinary ice hills, which at first we had taken for islands, they must have been quite 30 feet above the level of the floe; some stood singly, whilst others were grouped together and were composed entirely of ice; we had to go round them. Towards the end of the march we opened another opening to our right, much to my annoyance, as I felt I had too much on hand already. I altered

course towards it, and by the time we camped we were about 3 miles off, and I determined to explore it the next day while the sledge went on to Cape Cleveland.

Sunday 14*th, and Monday* 15*th May.*

Started at 6 A.M.; a dull grey day; hazy round the land; very unfortunate, as a bright clear one would have saved us a long walk.

Started 6 A.M.
Camped 4 P.M.
Lunch 1 h.
Marching 9 h.

I gave the captain of the sledge orders to start for a certain point, and if he reached it before a certain time to have lunch and go on to Cape Cleveland. Then Wilson Dobing, R.M.A., and myself started for the opening, reached the point which formed its entrance, and ascended the hill, but clouds and mist obscured the land, so that we could only see the base of the cliffs; we were looking down into a large bay, the other end of which seemed to communicate with some other fiörd. To make sure of this, we went on first to a small island in the bay, and then about 2 miles further on, and opened such remarkable cliffs in the distant land that I felt confident I should see them again the next day, if, as I supposed, the land to our left was an island.

Wind. Wr. Ther.
N. 3 to 4 } o.h. −1°
o.m. −4°
„ o. +4°
In tent +15°
Dist. trav. 5½ m.
„ made gd. 4½ m.

Satisfied with this, we retraced our steps, and found the sledge camped under Cape Cleveland, and were glad to get something to eat after our 12 mile walk.

Dobing accidently broke the stock of the gun.

I have collected a large number of angles and bearings. The little island in the bay was a collection of geological specimens, slate, limestone, granite, puddingstone, &c.

The floe in the bay was unbroken by a single hummock, but the snow was soft and about 2 feet deep.

Monday 15*th, and Tuesday* 16*th May.*

Started at 6.45. P.M.; clearing up; going to be a fine day; clouds and mist clearing away; found my watch had stopped since I had called the cook; I am very sorry for this, but it is my fault, as I forgot to wind it up before turning in; took a bearing of the sun, and started again.

Started 6.45 P.M.
Camped 5·30 A.M.
Lunch 1 hr.
Marching 9h.45m.

We soon got round Cape Cleveland, and into what appears to be the main channel. I gave the sledge a point to steer for across on the other side, but myself followed the land from Cape Cleveland; about a mile and a half from the point I came in sight of a curious cliff, which I sketched, and then as it had quite cleared, I ascended the talus of the cliff, and got a good view. I immediately recognized the several lines of distant cliffs I had seen yesterday, and especially the cape with the remarkable base; this proved that the land I stood on was an island. Satisfied with this I took angles and bearings, sketched it, and then rejoined the sledge.

Wind. Wr. Ther.
W. 1 b.c.m. +5°
„ b.c +6°
„ b.f. −1°
In tent 31° to 12°
Dist. trav. 5½ m.
„ made gd. 5 m.

The remarkable cape I had named Cape Buttress, and as it appeared to be the entrance of a channel, I was very desirous of opening it out, and after lunch hurried on across the strait or channel.

By about 3 A.M. we had opened the cape from the cliffs, which were very much more distant, but beyond which there was no land to be seen. We continued to make the opening wider the remainder of the march, but before camping a thick fog had obscured everything, and our progress was very much retarded by deep snow, deeper than any we had before experienced, from 2½ to 4½ feet deep. I waited up until 12 P.M. in hopes of getting a meridian altitude, but the fog never cleared off.

This was Craig's birthday, and we celebrated it by giving him an extra allowance of tea. Gray used some glycerine for a chafe. We find our foot gear very wet now, and though we have not made any change in our clothes, yet we shall soon have to put on boots.

Tuesday 16*th, and Wednesday* 17*th May.*

I was very sleepy this morning, not having turned in until 12; still very foggy, but the fog is not so low, and we can see the base of the cliffs. Our mark of yesterday is turning out to be an island, and there is evidently another close to it.

Started at 6.30 P.M., and telling Gray to steer for the island, I walked ahead with the sextant to reach it first, and get a round of angles from its summit. I particularly wanted to ascend some height and look through the channel past Cape Buttress, as from the floe there was no land to be seen beyond, but the walking is too terrible;

Started 6.30 P.M.
Camped 6.30 A.M.
Lunch 1½ h.
Marching 10½ h.

Wind.	Wr.	Ther.
Calm	f.	− 4°
,,	b.f.	− 5°
,,	b.	+ 5°
In tent		+42°

Dist. trav. 3 m.
,, made gd. 2 m.

I went on for 2½ hours, but I cannot have gone much farther than a mile, the snow is so deep and difficult to walk in, you cannot go for more than 100 yards without stopping to take breath, and almost the whole time I could hear the "one, two, three, haul," of the crew behind, who were having hard work of it with the sledge. I went back to them because the fog came on so thick that I was afraid of missing them altogether, as I could not see more than 5 yards; they were very much exhausted, and complained of the strain brought on their legs by the constant lifting them to break down the snow in advance, for it was too strong to push through; I fell into the drag ropes, and we pushed on, but very slowly, and at an immense cost of labour.

Stopped for luncheon at 12.30, glad of the rest; both Craig and Jenkins say that this constant stepping in and out has brought on a pain in their thighs. Started again at 2; still very bad travelling, but the fog lifted, and we found ourselves not far from the small island, having intended to reach the large one, but missed the direction in the fog. It was not worth going to it now, so we kept on and reached the island by 3.30 A.M., but could not land on account of broken ice and water. It is quite a small island, and a reef on its eastern side keeps the ice very much broken, whilst the high tides overflow. I ascended the highest hummock I could find and took a complete round of angles and bearings while the sledge was going on; it was now quite fine, and from where I was I could see the whole of the channel from Cape Cleveland to miles past Cape Buttress; it was as smooth as a lake, and looked as if you could march 15 miles a-day on it, but it probably was the same deep soft snow throughout, and I quite made up my mind not to try to reach Cape Buttress, which I estimated at 18 miles. I therefore decided to push on for Mount Hooker, and hurrying after the sledge put them in the right direction. We were not able to get far from the island before camping time, as the snow was very deep.

Camped at 6.30 A.M. It was a most beautiful morning, and I wanted very much to get a meridian altitude, so I stayed up. It was very hot, and the glare dreadful, but I got the altitude and was in bed by 1 P.M. Called the island Reef Island.

Wednesday 17*th, and Thursday* 18*th May.*

Started 8.30 P.M.
Camped 5.30 A.M.
Lunch 1 h.
Marching 8 h.

Wind.	Wr.	Ther.
Calm	b.	+4°
,,	,,	+4°
,,	,,	+5°

Dist. trav. 2½ m.
,, m. good 2 m.

As I had turned in so late, I overslept myself, and did not wake until 5.30 P.M. Took sights for longitude before starting, which it delayed until 8.30 P.M. While I was taking sights, Gray and the others had prospected in every direction for harder snow, but without success; and when we started it was under the same unfavourable circumstances of deep snow; but the shore under the high peak that I had always called Mount Farragut seemed quite near, and observing a glacier close to it, I left the sledge with the intention of both examining the glacier and ascertaining whether the travelling was better in shore.

I found walking very difficult, slow and most exhausting. I went on for three hours and a half, but had not made any perceptible difference in the distance of the shore. I felt sick and faint from hard work, and had to lie down. I could hear the monotonous chant of "one, two, three, haul," delivered with unvarying regularity by the sledge crew, who had almost come to standing pulls by this time.

I hailed them to go to lunch, and had another try at getting into the land, but gave it up at last as I came to the conclusion it was quite impossible on a perfectly smooth expanse like that, without even the smallest object intervening, to estimate the distance of the high perpendicular cliffs beyond. I made a sketch of the coast, and then started back towards the sledge, finding great relief from walking back in my tracks. The men were again under way, and as soon as I joined them we all worked steadily for the remainder of the time, but with small results as regards distance.

This travelling is so slow, that I am afraid we cannot get much further; as far as we can see on every side, it appears to be the same, even down to Cape Buttress, had I wanted to get there I could not. I would turn back or do anything to get out of it, but we are three-quarters of the way over, and turning back seems worse than going on. If we do not find harder snow near the shore we shall be in a serious predicament. The men are very tired to-night, and Craig and Jenkins much stiffer, though all are still very hopeful and cheery. I hope this stiffness does not mean scurvy. We are camped in the soft snow, very uncomfortable. It has been a most beautiful day, without a cloud in the sky or a breath of wind.

Thursday 18*th, and Friday* 19*th May.*

I did not wake until 4.30 P.M.; called the cook. It is a fine day. Craig, Jenkins and Jones are so stiff that they can hardly bend their legs. Started at 7.30, but it is evident the work is telling on us.

We got better as soon as the stiff ones had been at work a little time.

We tried several expedients to make the work not so heavy, such as cutting roads, etc., but the loss of time was too great, so we resorted to the customary way.

After lunch we did better; the rest and warm tea refreshes everyone, and much of the stiffness has worn off by that time.

Yesterday the shore looked a mile off, to-day it looks still the same, though we must have approached it by more than that. Everyone is disappointed, but there is no complaint or discontent; they hope on, and hope for ever. We worked until 7, and then camped; the men were very tired, and Dobing and Jones could hardly eat their pemmican. They had been leaders in the drag ropes all day, and that is extra hard work. I am afraid to say that we have done more than a mile to-day, but to look back it looks like ten.

Started 7.30 P.M.
Camped 7 A.M.
Lunch 1 h. 30 m.
Marching 10 h.

Wind.	Wr.	Ther.
Calm	b.c.	+4°
N.	c.	zero
,,	b.c.	+19
In tent		+44°

Dist. trav. 1 m.
,, made gd. 1 m.

Friday 19*th, and Saturday* 20*th May.*

The evening was beautiful when I awoke, at 4. We started at 7, in good spirits, the result of a good night's rest.

I was rather uneasy at the uncertainty of the prospect, as we were drawing near to the time when we must turn back on account of the provisions; and yet it seemed a cruel thing to have to turn back when within a mile of the land from which we fully expected to see so much.

I was still in hopes, though of course not sure that we should be able to travel along the shore to Mount Hooker, and from there start for home, thus completing the programme I had contemplated; but if not, then it was my intention to reach the shore, and attempt the ascent of Mount Farragut for the purpose of overlooking as great a tract of country as possible; this I thought would be decided to-day. As the men were so done and our progress so ridiculously small, we left the sledge and started walking for the shore in two lines, three abreast, hoping that in an hour we would make a road to the shore, it seemed so near, and then come back and get the sledges in, for the great labour was walking not dragging.

We started and walked steadily from 8 to 1 P.M., until we had altered the position and appearance of all the land around, except the wretched cliff in front of us, that still looked a mile off, and feeling that we should not get the sledge in that day, even if it was desirable, I sent all back but Gray, with orders to lunch, and if I did not come back soon to pitch the tent and camp.

Alex. Gray and I then went on, just able to see the top of the cliff through the fog that had settled down upon it.

We walked just two and a half hours more, and at last reached the shore, but only to find deep soft snow up to the very rocks; near the shore the ice was seamed with wide cracks filled with water, the top of which was quite fresh, probably from the glacier which we knew to be near though it was obscured by fog.

We returned to the sledge in two and a half hours, showing the difference between making a road and walking in an old one. We had been walking from 7 P.M. until 8.45 A.M.

I turned in, intending to decide on our future course to-morrow.

Jenkins informed me that he had scurvy, the discoloration having begun and stiffness increased; in that case then Craig has it too, for he is hopelessly stiff.

Started 7 P.M.
Camped 3 A.M.
Marching 7 h.

Wind.	Wr.	Ther.
Calm	b.	+14°
,,	b.f.	+11°
S.	f.	+8°
In tent		+44°

Dist. trav. 5 m.

Saturday 20*th, and Sunday* 21*st May.*

I have decided to wait here for to-day, so I let them have a good sleep.

It is of no use taking the sledge on any further; besides that, Craig and Jenkins are getting too stiff to advance any more; it will also be best to go back on our tracks as it makes it so much easier.

We held a strict survey of the provisions, and if possible remain here to-morrow as well, in the hopes of getting up Mount Farragut for a last look; it is snowing hard now; very thick; with a keen wind from the south.

Wind.	Wr.	Ther.
S. 2 to 4	o.z.	+14°
,,	o.s.	+11°
In tent		+25°

The provisions have been examined, and are all right, except the bread; I expect that is from filling up sledges as they left us; I have been working all day at the skeleton chart which must be finished to leave behind. Snow has been falling all day.

Sunday 21st, and Monday 22nd May.

Wind. Wr. Ther.
S. 2 o.s. +14°
" " +14°

Still very thick and snowing; it is very unfortunate that the bad weather should have come just at this time, when, as we cannot advance, we would have liked to have a last good view. This delay too is bad for Craig and Jenkins, who are no better.

In fact only Gray and myself are free from stiffness, but it wont last with the others I hope. I have finished the skeleton chart, and we have all been mending our clothes, but this inaction is very wearisome, and there is no chance of its clearing up.

Monday 22nd, and Tuesday 23rd May.

Still thick and snowing, and quite warm; thermometer + 22°.

Started 7 P.M.
Camped 5 A.M.
Lunch and building cairn 2 h.
Marching 8 h.
Wind. Wr. Ther.
Calm o.s. +22°
" " +14°
" " +13°
Dist. trav. 7 m.
" made gd. 7 m.

Called the cook at 4 P.M. and started at 7; everyone in low spirits at our disappointment; but there is no use waiting, as there appears no chance of its clearing up.

Most of us feel much rested, but Craig and Jenkins are worse; Jenkins' patches are more numerous and darker; Craig shows no discoloration, but complains of the pain in two hard lumps inside the thigh, a little above the knee; we are keeping to our tracks, and find it comparatively easy work, exposure has hardened the broken surface and we don't sink in so far; if we leave the road it is as bad as ever; the snow is melting on everything it touches to-day.

Pushed on to Reef Island, and halted for lunch. I decided to leave a record there, as that was our farthest land, but being so insignificant and out of the way, I reserved the skeleton chart for Dragon Point.

See page 400.

After lunch we managed to get on to the end of the point, and built a cairn, and deposited the record, of which a copy is enclosed; then went on, retracing our steps along the tracks. By camping time we had done so well that we had made up for the two days' waiting at the furthest; it seems hardly creditable that walking back on the tracks should make such a difference, but so it is, and we have done 7 miles in the eight hours; if things turn out favourably we may make a dash for Mount Hooker after all. Dobing complains of a strain in his left leg.

Tuesday 23rd, and Wednesday 24th May.

Started 7.30 P.M.
Camped 8.30 A.M.
Lunch 1½ h.
Marching 8½ h.
Wind. Wr. Ther.
S. 1 o.s. +17°
" +13°
N. 2 b.c. + 7°
In tent +51°
Dist. trav. 6 m.
" made gd. 5½ m.

Dull and thick, with wet snow falling; started at 7.30 P.M.; still keeping to our old tracks. Neither Craig nor Jenkins can pull to-day; they did not do much yesterday, but to-day it takes them all their energy to keep up with the others, their legs are so stiff; Jenkins is very dismal, poor fellow, and Craig very silent, but determined; he saw the marks out on his legs to-day. In spite of the lame ones and the general thaw we are getting on well. Stopped for lunch near Cape Cleveland; the tea and rest does us all an immense deal of good, and we felt much refreshed when we started again. It is snowing and thick still, but inclined to clear to the north. I immediately resolved to leave the track and travel towards Mount Hooker until camping time; if it had cleared up by that time, and looked like fine weather, we would organize an expedition to it, but if it kept on snowing we could start for Dragon Point next march, not having been much out of the way. By camping time it had quite cleared up, and Mount Hooker looked all the more tempting and beautiful that we had not seen it for so long. It was arranged that Craig and Jenkins should remain in the tent with the provisions, while the remaining 5 started with five days' provisions and their bags only on the sledge. Having seen everything ready we turned in for a good rest; I estimated the distance to be from 16 to 18 miles.

Wednesday 24th, and Thursday 25th May.

The moment I awoke I knew our expedition must be given up, for it was snowing hard melting as it fell, everything was wet.

Started 7. P.M.
Camped 4.30 A.M.

We started at 7 P.M. towards Dragon Point, the others almost as disappointed as myself.

We passed the ice hills that we had seen before, and stopped for lunch at 11.30; during lunch it began to clear, and it continued to do so the remainder of our march; so that by the time we had reached Dragon Point, I had made up my mind to ascend Mount Windham Hornby as a last chance of seeing beyond Mount Hooker.

We camped on the point at 4.30 A.M., and I immediately proceeded to select a spot for the cairn; it had to be placed rather far back, as there were no stones nearer the end, nor would it have been seen.

While the men were building it and supper was preparing, Gray and myself turned in for an hour; then I wrote the record, completed the chart, and armed with a pemmican chopper, sextant and telescope, we started at 9 A.M., calling at the cairn on the way and depositing the cylinder.

Saw two ptarmigan; took a meridian altitude on the way; reached the top after six hours brisk walking, we had to cut steps up the cone as it was all ice.

The view was magnificent from that height (3,700 feet), but we did not see what we wanted. The Mount Hooker land was too high to see over it, and Cape Buttress Channel was shut in.

Over Cape Buttress we could see either a floe or a *mer-de-glace*, but it was so hazy there I could not tell which. Mount Albert was not joined to Cape Britannia Land, but it was a separate island. After taking numerous angles, bearings and sketches, we started back, the fog closing round us, as we got lower, until by the time we reached the tent, at 9 P.M., everything was hidden from view; we had a cup of tea and the men had breakfast. I left word that they were to take some exercise to prevent their getting too stiff.

Lunch 1½ h.
Building cairn 1h.
Marching 8 h.
Wind. Wr. Ther.
S. 1 o.z. +21°
S.W. 2 to 4 } b.c. +13°
+ 7°
S.W. b.
Dist. trav. 6 m.
„ made gd. 6 m.
To the mountain.
Marching 9½ h.
On top 2½ h.
Dist. trav. 13 m.
Height 3,700 ft.

Friday 26th May.

We were not called until 4.30 A.M., although I had said 2; but they could not tell the time as the sun was not visible, and it was blowing and snowing hard. Craig and Jenkins had been out for a walk, and said they could hardly move when they first started. Dobing says the calf of his leg is much swollen; and Paul, who has been limping the last two days, is very stiff; Jones is better.

Packed up and started, everything wet. As long as we could see the land we saw the cairn, so I think it is well placed.

Steering by compass for Cape Fulford; this will only be half a day's march, as I want to keep to night travelling. Camped at 9.30 A.M., still blowing and snowing.

This warm snow that is falling is rotting the hard snow underneath, and making the travelling very heavy. All the men are wearing their canvas boots. I have done so some time.

Started 5 A.M.
Camped 9.30 A.M.
Marching 4½ h.
Wind. Wr. Ther.
S.W. 3 to 4 } o.q.
„ „ +14°
„ „ +11°
W.S.W. 2 to 4 }
Dist. trav. 3 m.
„ made gd. 3 m.

Friday 26th, and Saturday 27th May.

Called the cook at 6, blowing and snowing as fast as ever. Neither Craig nor Jenkins can put on their own foot gear now. I am afraid there is no doubt about Paul's case. Dobing and Jones are still in the doubtful stage, they are both strong men. I hope they will hold on. Gray and I are still quite well. Started at 9.30 P.M., steering by compass for Cape Fulford; stopped for lunch at 1.

Pitched the tent; we always do so now, as the total rest and comfort that and the tea affords is the best restorative for the sick men. The tea is in such great request that we use the eight men's allowance for the seven of us, which gives a little extra for each; we caught a glimpse of Cape Fulford for a moment, and found we were steering directly for it.

Reached Cape Fulford at 6.30, and as this was the best travelling we could hope to have for some days, I pushed on for the depôt, where we arrived at 9.30 A.M.

Started 9.30 P.M.
Camped 9.30 A.M.
Lunch 2 h.
Marching 10 h.
Wind. Wr. Ther.
W.S. W. 2 to 4 } o.s.q. +22°
+24°
+23°
Dist. trav. 9½ m.
„ made gd. 8 m.

Saturday 27th, and Sunday 28th May.

Called the cook at 5.45 P.M., as we had to take up a depôt.

The snow is melting as it falls, and everything is wet. Paul is much worse; the others are much the same, but tired; we found everything as we had left it, and as we put it on the sledge, I regretted the necessity of having to carry so much extra weight in our condition.

Started 9.30 P.M.
Camped 7.30 A.M.
Lunch 1½ h.
Marching 8½ h.

Wind. Wr. Ther.
Calm o.s. +30°
+14°
+22°
Dist. trav. $2\frac{3}{4}$ m.
,, made gd. $2\frac{3}{4}$ m.

We started at 9.30 P.M., but experienced great difficulty in making any progress; what with the three non-workers, the fresh wet snow, and the extra weight, we were almost at a stand still, and it was not until after lunch that we found the reason. The wet snow had frozen to the steel of the runners during the night, and made them so rough that it almost doubled the labour of dragging. After they were scraped bright we got on much better; this gave us a hint which we did not forget, and after every halt we turned the sledge up and examined the runners; there was always something to scrape off if the snow was wet. We had been travelling along the coast from Cape Bryant, thick snow falling; camped at 7.30; at the same place as on the 11th. This has been a very bad day for Craig and Jenkins, the deep snow obliges them to go slowly; they are in such pain that we are going to try if fomenting will do them good.

Sunday 28th, and Monday 29th May.

Started 10 P.M.
Camped 4.30 A.M
Lunch $1\frac{1}{2}$ h.
Marching 5 h.
Wind. Wr. Ther.
Calm o.s. +22°
+ 8°
,, b.c. +12°
Dist. trav. 3 m.
,, made gd. 3 m.

Called the cook at 6 P.M., but did not start until 10, as 3 men had now to be dressed for the journey. The fomenting made them feel easier for the time, but this morning they are no better. Jenkins' legs are swelling, the discoloration is working down them, and they are hot and shiny; Craig still complains of the hard lumps inside the thighs, and says they cause him the most pain, while poor Paul cannot straighten himself to drag; we don't make a very lively procession. We worked on steadily until 2. A.M., then lunched. Started again and reached old River Point by 4.30. A.M. The reason of our *very* slow progress is that we are dragging a comparatively heavy load with few hands through unusually heavy snow, for it is wet, soft and deep. After consulting with Gray, I decided to leave everything not absolutely necessary behind. I could not feel sure how long Dobing and Jones could last, and it was better to make the most of our strength now; so we unpacked everything, and held a survey; put on a clean shift of clothes, and then made up our depôt. It had been snowing all day as steadily as ever, but as we camped it cleared, and the sun came out for the first time since Dragon Point (25th).

Monday 29th, and Tuesday 30th May.

Started 9.30 P.M.
Camped 7.30 A.M.
Marching 8 h.
Wind. Wr. Ther.
Calm o.s. +19°
+ 8°
N. 2 b.c. +22°
Dist. trav. 5 m.
,, made gd. $4\frac{1}{2}$ m.

Packed our knapsacks for the last time; we have not used them much, so we wont miss them; secured the depôt, and started at 9.30; very thick and snowing, so that we missed our way, but not for long; travelling back the way we came, but it is a dull journey, as we cannot see anything; a great deal of snow has fallen, making it hard work for all of us, both sick and those who are dragging. We passed Wood Point, and camped half a mile beyond at 7.30. It has cleared again, and a cold wind is blowing; the sick are very tired, poor fellows, and in considerable pain.

Tuesday 30th, and Wednesday 31st May.

Started 10 P.M.
Camped 8.30 A.M.
Lunch 2 h.
Marching $8\frac{1}{2}$ h.
Wind. Wr. Ther.
Calm o.s. +14°
o.s. + 3°
S. b. +21°
Dist. trav. $5\frac{1}{2}$ m.
,, made gd. $4\frac{1}{2}$ m.

A thick morning and snowing again. I fomented Craig's legs again before turning in, but it has done him no good, so he feels desperate, and says he will never get well. Jenkins is despondent, though we try to cheer him up; the marks are down to his ankles, and his legs are painfully swollen, hot, and shiny; he says he is getting very weak, and his mouth and nose are breaking out in sores. Poor Paul says less than anyone, but he is very bad. Dobing and Jones still hold up. Gray and I are well. Started at 10.30; the men who cook are sick now, and they take a long time. Travelling over the same ground that we passed before, only it is difficult to recognize it, so much snow has fallen, and the weather is so thick; we got into difficulties in crossing a bit of floe, the sick men falling several times into cracks that were not visible; eventually we arrived at the hill by Point Rest, or Hard Work Slope, and got over it in time; the new snow has made it not so slippery as before, or else we would have found it more difficult. We came on Rawson's tracks as we left the land for the floe in Frankfield Bay, and after a hard hour in deep snow with a hot sun, we camped at 8.30 A.M. It cleared up about 5 A.M., and the sun has been very hot since. Dobing shows unmistakable signs of scurvy

Wednesday, 31st May, and Thursday, 1st June.

Called the cook at 6 P.M., and started at 9.30 P.M.; blowing fresh and snowing fast. We could hardly see the land, and had very hard work to get to the spit, the snow was so deep and soft. Travelling on the land is so bad, and so thick, we can hardly tell where we are. Worked steadily all day; it got much colder about 2, during lunch, and afterwards began to clear up. Camped at 7.30 A.M. by Cape Lowe; everyone very tired. Craig wants to try fomenting his legs once more, he has not got worse in the way of walking, but his gums and teeth are becoming very sore. Jenkins is getting weak and querulous; his legs are dreadfully swollen and puttyish, his mouth and nose all over sores, and he says his breath burns him like fire. Paul is getting worse, and Dobing complains of his left calf very much; it is much swollen, hot, and red. I hope to-morrow will be a fine day; it will be such a help in crossing Hand Bay, and we have had so much bad weather lately.

Started 9.30 P.M.
Camped 7.30 A.M.
Lunch 2 h.
Marching 8 h.

Wind.	Wr.	Ther.
W.S.W. 2 to 4	o.s.	+19°
	o.s.	+11°
Calm	b.	+19
In tent		+65

Dist. trav. 5 m.
,, made gd. 4 m.

Thursday 1st, and Friday 2nd June.

I was up late fomenting Craig's and Paul's legs, but I am afraid it does them no good. Dobing the cook was so long that we did not start until 10.30 P.M.

Struck across the bay above our old tracks; snow very soft, with deep cracks and holes; but the weather fine and clear. We advanced very slowly at first, but gradually got on to harder snow, and did better. Did not pitch the tent for lunch, but sat in the sun and enjoyed the heat. The snow melts so easily now that we are wet to the waist every day half an hour after starting, it is lucky it is warm; steered straight for Cape Stanton, which we reached by 7 A.M.; found Rawson's tracks here again.

Camped at the point; the sick men very tired, especially Paul and Jenkins, whose symptoms are all aggravated; the weakness and lameness of the sick compel us to travel more slowly now.

Started 10.30 P.M.
Camped 7 A.M.
Lunch 1 h.
Marching 7½ h.

Wind.	Wr.	Ther.
Calm	b.c.	+31°
	,,	+20°
	b.	+35°
In tent		+72°

Dist. trav. 4 m.
,, made gd. 4 m.

Friday 2nd, Saturday 3rd June.

The men were so tired, and the first part of sleeping time so hot, that I did not call them until 7 P.M. I feel that I must economise their strength, as overwork most certainly brings on the disease, and there are only two sound ones left out of seven. Appetites are becoming very small, and ill-health is making the sledge fare most distasteful; the sick will not touch cocoa before starting, and can't eat unsoaked biscuit, so I have ordered tea for breakfast, and the cocoa for supper; the weather has changed during our halt, and it is snowing fast now. We started at 10 P.M.

Craig is more cheerful, but Jenkins and Paul are weak and low; Paul can scarcely move.

We got on pretty well until we got to the slopes between the Cape and Stanton Gorge, but here Jenkins and Paul had to leave the drag-ropes, as in catching at them to save themselves they kept knocking us all down. Our cut roads were all filled up, and if it had not been for the new snow not being slippery, four men could not have dragged the full load. It began to clear up after lunch, and we saw Stanton Gorge ahead, but though so near it took us a long time to pass the slopes.

Reached the depôt at 6.30 A.M. I saw traces of Rawson's camp; went up to the depôt and found it all right, with a note from Rawson; took 40 out of the 80 rations, as we are eating so little that we do not want more. I saw the floes past the Black Horn Cliffs quite plainly, there is not a sign of their moving yet.

I dread the snow slopes for to-morrow.

Started 10 P.M.
Camped 6.30 A.M.
Lunch 1½ h.
Marching 7 h.

Wind.	Wr.	Ther.
S.W. 2	o.s.	+28°
,,	,,	+21°
	,,	+28°
In tent		+55°

Dist. trav. 2½ m.
,, made gd. 2 m.

Saturday 3rd, and Sunday 4th June.

Awoke at 6.45, and whilst things were getting ready I went up to the depôt, built it into a cairn, and left a record. Craig, Dobing, and Jones are holding out resolutely, but Paul and Jenkins, poor fellows, are getting too weak to do anything. When we started at 9.30, Paul fell down at the first step incapable of further motion; we put him on the sledge and lashed him there, but with his extra weight we could not move it on the slopes, though we tried hard. Paul complains that he is getting colder and

Started 9.30 P.M.
Camped 8.30 A.M.
Lunch 1 h.
Marching 10 h.

Wind. Wr. Ther.
E. 1 b.c. +19°
,, ,, +32°
Calm ,, +35°
In tent 40° to 60°
Dist. trav. 4 m.
,, made gd. 1½ m.

colder; he is evidently very much frightened at himself, and I am afraid he is very bad; pitched the tent and put him in, leaving Craig and Jenkins to watch him. We started off across the hummocks with all the provisions for a floe about half a mile from the land. The work was tremendous, and the sun very hot; but we got there and returned with the empty sledge. Had lunch and started again. Paul lashed on the sledge. Jenkins going on before; reached the floe by 8.30 A.M.; camped. Paul a little easier; Jenkins used ointment for his nose and mouth, which are very sore.

Sunday 4th, and Monday 5th June.

Gave Paul two pills before turning in; he is about the same to-day.

Started 9.30 P.M.
Camped 7 A.M.
Lunch 2 h.
Marching 7½ h.
Wind. Wr. Ther.
Calm b. +35°
b.c. +28°
,, +30°
In tent 45° to 65°
Dist. trav. 3 m.
,, made gd. 3 m.

Fine evening, and all our things are nice and dry; I am afraid it is going to be a hot and very bright march; shaped our course across the floes for the point where we took the ice outward bound. Jenkins must keep walking as long as he can, for it is bad enough to have to carry one. We have had to wait for him several times to-day, as he cannot go as fast as the sledge.

The ointment did him good yesterday, but now it is so hot in the tent that the offensiveness of the sick men's breath at night is almost unbearable. We have been crossing the usual variety of floes and hummocks all day, steering for the end of the Black Horn Cliffs.

Monday 5th, and Tuesday 6th June.

Started 10 P.M.
Camped 7.30 A.M.
Lunch 2 h.
Marching 7½ h.
Wind. Wr. Ther.
Calm b.m.
,, f.
,, b.f.
Dist. trav. 2¾ m.
,, made gd. 2 m.

It has been very hot, and everyone very restless, so that we did not get much sleep; the invalids are very bad this morning; Paul cannot move, and must be carried to the sledge; Jenkins must still crawl along. It is getting thick and misty; most unfortunate, as we are amongst the hummocks, and it is very important that we should see our way clearly; during the march it became so foggy that we could see no distance, so gradually went astray. When it cleared up by camping time we found ourselves in a wilderness of hummocks close under the Black Horn Cliffs; Jenkins is dead beat and everyone else very tired.

Since it became fine I know exactly where we are, and to-morrow hope to get into our old tracks again and get on better.

Tuesday 6th, and Wednesday 7th June.

Started 9.30 P.M.
Camped 6.30 A.M.
Lunch 2 h.
Marching 7 h.
Wind. Wr. Ther.
S.W. 1 b.c. +35°
b. +21°
Calm ,, +39°
In tent +75°
Dist. trav. 2½ m.
,, made gd. 2¼ m.

We did not have much sleep as it was too hot. Started at 9.30 P.M., and in about an hour got into the old tracks, and found our cut roads still in existence. This is a great piece of luck. Travelling very slowly on account of Jenkins, who has to be waited for every 100 yards. It was a fine day, and whilst waiting for Jenkins I got a round of angles to make up for the bad weather we had here before.

After lunch we reached the shore, and if it had not been for the old road we should have had great difficulty in getting on to the land. As it was it finished Jenkins, who fell, unable to go on a step further; we made room for him on the sledge, and started to finish our day's work; but as we approached the slopes near Snow Point the work became too heavy and we had to stop; I had a very good view of the land at both sides of the channel to-day.

The ice seems quite fast still everywhere, and that encourages me to hope that we shall be able to make a dash for the "Alert" from Repulse Harbour, but I have not mentioned this to the men.

Wednesday 7th, and Thursday 8th June.

Wind. Wr. Ther.
Calm o.s. +35°
,, ,, +27°
,, ,, +31°
Dist. trav. 3¾ m.
,, made gd. 1¼ m.

As it was cool during the day we slept well, the first time for three days, and being tired I did not awake until 7 P.M. Jenkins has collapsed completely, and can't even stand; if once they break down they never walk again, so the thing is to keep them going as long as possible, though poor fellows they suffer very much. As we would be on the slopes for the next two days, I determined to advance by half loads, so leaving the three sick men in the tent with all their bedding, and orders to be ready for lunch when they saw us coming back, we started with the provisions, and

took them on for three and a-half hours. Dobing and Jones are steadily going down hill, so that the work on the slopes is very severe; fearing lest Paul and Jenkins should prove heavier, I did not go on further, but went back for them with the empty sledge, reaching the tent after five hours' work.

Saw two Brent geese flying north; after lunch we struck the tent and lashing the two men under it on the sledge we started again.

They were much worse than the provisions, for on the slopes they rolled helplessly to leeward and made it almost impossible to move the sledge, the runner was so buried.

Snow Point nearly proved insurmountable, and we were quite exhausted when we reached the camp at 9.30 A.M.

Craig fomented Paul's legs before lunch, but nearly fainted in the operation. Dobing has been limping all the day, his leg is very painful.

To-morrow we have to get past Drift Point. It has been snowing all day; saw the two geese returning south.

Thursday 8th, and Friday 9th June.

Another dull day, and very wet, as the stuff that is falling becomes a drop of water the moment it touches anything. Jenkins' legs are not quite so swollen since he is carried, but the pain is greater; the others are no better.

Started at 9.20 with the provisions along the slopes, intending to pass Drift Point and return for the sick.

I would have gone by the floe to avoid the slopes, but I could not feel sure that we should be able to land again.

We all knew it was going to be very hard work, but it was more so than even we expected.

At Drift Point we had to unload the sledge and carry the things over.

I looked for a place to land if we came by the floe, and found one, with Rawson's tracks there, showing that he too had avoided the land.

We went back by the floe and took in our second load, which we landed safe on the right side of Drift Point, and *all* the slopes by 2.45 A.M. It was clearing up, and after tea and rest, we started again with the sledge packed, and the two men lashed on it in their bags.

Travelling along the land towards Repulse Harbour, shot at a goose that flew over our heads, but as the stock is broken off the gun, and only one barrel will fire, I did not kill it, though it fell on the icefoot badly wounded. It got away before we could catch it.

Stalked 12 more that were all feeding together, but they did not let me get near enough.

The sick were very much disappointed at not getting any fresh meat, and so was I for them.

Just as we were camping, Gray saw a boatswain's bird going north. I hope that does not mean open water.

Started 9.20 P.M.
Camped 8.30 A.M.
Lunch 1½ h.
Marching 9 h.
Wind. Wr. Ther.
Calm o.s.m. +32°
„ b.c. +28°
S.W. 2 to 3 } c. +31°.
Dist. trav. 2¾ m.
„ made gd. 1¾ m.

Friday 9th, Saturday 10th June.

A cold wind was blowing, and the snow beating against the tent when I awoke at 7 P.M.

Dobing, who cooks the breakfast every day now, to get his leg fit for walking, took a very long time, and dressing the sick is such an operation that we did not start until 10.45 P.M. We were amongst the sastrugi that gave us so much trouble before, and twice before lunch, owing to the stickiness of the top layer and the hardness of the bottom layer of snow, through which the sledge had sunk, we had to dig the sledge out, take off the sick and lift the runners on the pickaxe and shovel handle before she would start.

We got on better after passing the sastrugi track. Shot a ptarmigan, much to the men's delight.

We pushed on after lunch, determined to reach the depôt that march, and after a long day of heavy work reached it at 10.40 A.M. Saw traces of Rawson's camp, and got the records from the cairn.

We have had to wait for Craig a good deal to-day; he can only walk very slowly.

Now that Paul and Jenkins are carried, they do not appear to be getting worse so

Started 10.45. P.M.
Camped 10.40 A.M.
Lunch 1½ h.
Marching 10½ h.
Wind. Wr. Ther.
North 3 to 4 } o.s.q. +33°
„ o.s. 31°
„ „ 33°
Dist. trav. 4½ m.
„ made gd. 4 m.

fast, but they are very helpless. The ointment seems to have cured Jenkins' sores altogether. Dobing is getting worse ; he cannot eat anything to-night.

Saturday 10*th, and Sunday* 11*th June.*

Wind. Wr. Ther.
Calm o.s. +30°
S. 1 ,, ,, +35°

A thick day, and snowing hard. After reading the records carefully, I am only waiting to see the state of the ice to decide on going to the "Alert." The men are in urgent need of medical assistance. It is not far, compared to Discovery Harbour or Polaris Bay, and we know the road, while on the other hand Polaris Bay is unknown, and all who have preceded us may have gone back to the ship before we arrive.

The risk, however, is that with three helpless ones, and in fact a very lame crew, and no boat, if the ice is not perfectly sound we may not get across.

In the meantime I wrote and left a complete record of our proceedings and my intentions. We examined the depôt ; completed to eight days, and resecured it.

In vain I waited for a chance to have a look at the ice ; it never stopped snowing for a moment, and starting under such circumstances was like taking a leap in the dark.

At last, however, I decided that our next march, bad weather or good, we should start for the "Alert," and at all events try it ; so I told the men, and they were glad to hear it.

We had some preserved meat for supper that had been left for the dogs, but which the sick now most thoroughly enjoyed. Still snowing.

Sunday 11*th, and Monday* 12*th June.*

It is still snowing and thick, but we are going to start.

We packed the sledge, put on the two sick men, and lashed the small canvas boat that had been left at the depôt on the top of all.

Started 10 P.M.
Camped 7 A.M.
Lunch 1 h.
Marching or working 8 h.
Wind. Wr. Ther.
Calm o.s. +32°
+35°
+35°
Dist. trav. 2½ m.
,, made gd. 1

We started at 10 P.M., but not being able to move the sledge up the slope to the shore barrier, I saw that if we wanted to cross we must lighten it at all costs. We therefore made up a depôt of all we had left, only keeping a change of foot gear, and pitching the tent over the big depôt left the things inside. Thus lightened we got over the barrier, but not then even without taking the sick off and hauling them up separately in the sail.

At the end of the first floe, not a mile from the shore, we came to open water, a long patch about 30 to 40 feet broad, with the ice around very rotten ; there were patches of water both to the right and to the left, not merely water on the floe, but large black pools. Saw two dovekies.

After a consultation with Gray, I decided that with two helpless men on a sledge the risk was too great, and we reluctantly turned towards the land again. With much labour we got inside the barrier again, thanks to the old roads; as our journey now would necessarily be long and slow, I took the tent and gun again from the depôt, and we started for Polaris Bay, 42 miles off.

The men, who have been looking forward to being on board the "Alert" in less than a week, have not realized the change of route.

The snow is so heavy and the men so dispirited that we made but very little progress during the time remaining for work, and when we camped at 7 A.M. were not much more than half a mile from the depôt.

Monday 12*th, and Tuesday* 13*th June.*

Started 9.45
Camped 7.
Lunch 2 h.
Marching 8¼ h.
Wind. Wr. Ther.
Calm o.m. +30°
,, o. +25°
W. b.c. +32°
Dist. trav. 4½ m.
,, made gd. 1¾ m.

As we had found the travelling so heavy yesterday, I decided to work half loads to-day. It is still dull and thick but not snowing Leaving the three sick in the tent, we started with the provisions to advance them for half the time.

Gradually Dobing began to show signs of distress, and Jones too ; and by the time we had been an hour out, Dobing was obliged to stop and say he could not go on any further, whilst Jones said he had never felt so bad before.

This was a great blow to me ; if these two men went down then, there would only be Gray and myself to take the 5 of them on to Polaris Bay, 42 miles off. It did not seem possible ; but I quickly decided that under the circumstances we must take the whole of the provisions from the depôt ; so unpacking the sledge and leaving the two men to make the best of their way to the tent, Gray and I hurried to the depôt and got the remainder of the provisions, completing to 18 days.

After lunch, taking the sick on the sledge as well, we started again. Camped on reaching the provisions left in the morning.

Dobing and Jones have been assisting this afternoon, and got on pretty well.

I think the prospect of this longer journey has had a depressing influence on their spirits and caused this break down. If hope revives, they will.

Tuesday 13*th, and Wednesday* 14*th June.*

The day was dull, but clear, with no wind. Started at 9.30 P.M., and took the provisions on to what I suppose must be the Gap, as it is a large opening in the cliffs that seems to run inland. It is recommended to us in the records as a short cut to Polaris Bay, so we shall take it. Dobing could not work with us before lunch, as the pace was too fast.

After lunch we all started again.

We are travelling along the coast towards Cape Brevoort.

Craig can hardly walk, and we have to wait for him constantly. Camped at 8, where we had left the provisions.

Started 9.30 P.M.
Camped 8 A.M.
Lunch 2 h.
Marching 8½ h.

Wind.	Wr.	Ther.
Calm	c.	+28°
,,	,,	+30°
Calm		+35°

Dist. trav. 5¼ m.
,, made gd. 1¾ m.

Wednesday 14*th, and Thursday* 15*th June.*

A fine day; started at 9.45 P.M., loaded with provisions as usual; Dobing came a bit of the way with us; but had to go back, as he found he was of no assistance.

We are travelling up the Gap which is broad at the entrance, and rises gradually for 2 or 3 miles.

Came across a sledge-runner stuck in the snow, with a note from Rawson saying he had passed there on the 21st May.

Gave Jones a ride back as he cannot walk fast, and I was in a hurry.

Started again with the sick, and reached the camp safely by 9 A.M. Jones had revived, as I hoped he would; he has worked well the last two days; Craig also is keeping up bravely; his difficulty is eating, his gums are so sore. Paul and Jenkins are the picture of abject despair, and Dobing is very low.

Started 9.45 P.M.
Camped 9 A.M.
Lunch 2 h.
Marching 9¼ h.

Wind.	Wr.	Ther.
W.N. W. 3 to 4	b.c.q.	+30°
,,	,,	+25°
N.N. W. 2	b.c.	+32

Dist. trav. 6 m.
,, made gd. 2 m.

Thursday 15*th, and Friday* 16*th June.*

It has been blowing hard during the day, but it is quite fine.

Started with our first load without Dobing, who is too lame.

Spent some time in examining a split in the road, not knowing which ravine to take, as there were no sledge tracks in either.

The one we followed soon became very narrow and is bare of snow in many places.

Doubtful whether we were right, I left the sledge to go up a hill from which I saw the cliffs on the south shore of Newman Bay; I can follow the windings of the ravine for some distance, and as it seems to go in the right direction we will follow it.

Unpacked the sledge and went back for the sick; at 7 o'clock we camped on the bare ground, which was such a delight to Paul and Jenkins that they lay outside the tent smelling the earth for two hours.

I shot an ermine. Our travelling boots, which from being always wet are like brown paper, will not stand this rocky road for long.

Started 10 P.M.
Camped 7 A.M.
Lunch 1 h.
Marching 8 h.

Wind.	Wr.	Ther.
W. 2 to 4	b.m.q	+32°
	b.c.	+30°
Calm	,,	+38°

Dist. trav. 4½ m.
,, made gd. 1½ m.

Friday 16*th, and Saturday* 17*th June.*

Started at 9. On comparing notes, Gray and I find that we have each felt stiff for the last two days; I hope it is not scurvy.

This road is a very bad one now, whatever it may have been before the thaw set in; it is nothing but pools of water and rocks, with occasional patches of deep snow. Advanced provisions two miles.

After lunch brought the sick on and camped on a piece of bare ground.

We have had to carry provisions, sick and everthing across it for 200 yards, as the sledges wont move on the earth and stones.

Dobing and Craig arrived half an hour after us, they can hardly get on, but now that there are two I do not so much mind them being a little behind.

Started 9 P.M.
Camped 9.20 A.M.
Lunch 2 h.
Marching 10 h.

Wind.	Wr.	Ther.
N.N.E. 2 to 4	o.q	+33°
	b.c.	+28°
N. 2	,,	+32°

Dist. trav. 6 m.
,, made gd. 2 m.

Saturday 17th, and Sunday 18th June.

Started 10 P.M.
Camped 1 P.M.
Lunch 1 h.
Marching 14 h.
Wind. Wr. Ther
N.N.E. 2 to 4 } b.c. +32°
" +35°
N.N. E. 4 to 7 } b.c.q. +26°
Dist. trav. 8 m.
" made gd. 0 m.

Started this morning at 10 P.M., very anxious to get out of this ravine, which is longer than I thought; Jones is very stiff and lame, and Gray complains of swelled veins under his left knee; I am afraid it is nothing but scurvy.

We passed an old camp soon after starting, and saw several sledge tracks, then emerged on to a large plain, leading as we thought direct to Newman Bay, the southern shore of which we could see in the distance; but much to our disappointment we found that we really were on a high plateau 500 feet above the bay.

Having crossed it at hazard, we arrived at a point which overlooked a ravine, and descending we found we had hit on the same road taken by the other sledges. The ravine was so narrow and tortuous, that in some places the sledge touched the rocks on both sides. In three or four places there were abrupt falls or half decayed snow drifts, of from 12 to 20 feet high, where the sledge had to be unloaded and lowered, while the whole two miles of it was rocks and rushing water, with but very little snow.

We had gone on so long without knowing it, that I determined to take this load right on to Newman Bay, which we reached after very hard work at 7 P.M., finding Rawson's tracks again, and a note to say he had passed on the 24th.

Taking enough provisions for one meal, and leaving everything else, we started for the tent again, and reached it at 1 P.M., very tired.

As we came back a cold wind on the plateau froze our wet things stiff up to the thigh; very tired.

Monday, 19th June.

Started 12 A.M.
Camped 12 P.M.
Lunch 2 h.
Marching 10 h.
Wind. Wr. Ther.
N.N.E. 3 to 7 } c. +21°
N.E. 4 } b.c. +28°
Calm b. +35°
Dist. trav. 4 m.
" made gd. 4 m.

It has been blowing very hard ever since we turned in, and ended by blowing the tent away.

Packing up was a long job, as the things had to be carried to the sledge, and it was 12 A.M. of the 19th before we got away. My only fear was that Craig would not be able to walk this distance.

When we got to the end of the plateau we had to wait for them a long time, but afterwards in the narrow ravine we were so slow ourselves that he and Dobing went ahead, and got down somehow.

We took a long time and it was very hard work, the sick men had constantly to be taken off and lowered down separately, lashed up in the sail; the greatest care was necessary to prevent accidents, but we arrived at last all safe, but very tired, at 12 P.M.

Tuesday, 20th June.

Wind. Wr. Ther.
W. 1 b. +35°
"
Calm " +40°
Dist. trav. 1½ m.
" made gd. 1½ m.

Everyone slept soundly until 12 A.M., then we packed up, and started for half a day's march, to get back into night travelling.

The last two days I have felt all right again, but everyone of the others are going down hill. Dobing and Craig will have to be carried, for they lose all their breath after 20 yards, and Jones and Gray can hardly pull, their legs are so stiff. To-day, however, the floe is so smooth and good in Newman Bay, that we are getting on with the whole load, sick and all.

Camped at 8, Craig being unable to go further.

We passed a big crack 12 feet broad.

We have to tie our boots on now, as the soles are coming off; we are always wet.

Tuesday 20th, and Wednesday 21st June.

Started 10 P.M.
Camped 7 A.M.
Lunch 2 h.
Marching h.

We started at 10 P.M.; clear overhead, but low mist hiding the land.

We are steering across Newman Bay so as to reach the south shore at the point marked for crossing the plain. In consequence of Craig and Dobing, we are going very slowly, their breath fails them so, and they are so weak; towards camping time we had reached an older part of the floe near the cliffs of the south shore, and as it had commenced to blow fresh, we pitched the tent with extra precautions, and turned in; but

soon the squalls off the high cliffs became so violent and changeable in direction, that it blew the tent twice down; after which we could not get it to stand, though we tried for an hour.

In the meantime the sick were put on the sledge and covered with a sail, but the drifting snow and warm wind wet them through. By 2 P.M. the wind had lulled a little, and we pitched the tent with the guys, drag ropes, and sledge lashing, and got inside, but there was not enough room, and everything was wet; it went on blowing very hard all the evening.

Wind. Wr. Ther.
Calm b.m. +28°
,, ,, +32°
S.W. 4 to 8 b.c.q. + 33°
Dist. trav. $2\frac{1}{2}$ m.
,, made g. $2\frac{1}{2}$ m.

Thursday 22nd, and Friday 23rd June.

Still blowing very hard; at 4 A.M. it lulled, and the cook gave us breakfast; but just as we were going to pack up, it came on again and blew very hard until noon, when it died away suddenly; as we had been wet so long and had had no sleep, I had the tent re-pitched and the gear laid out to dry whilst we lay down for a few hours.

Started again at 9.30 P.M. with the whole load, but the long delay and wetting had crippled everyone, and the floe was now so wet that we found we could not get on; so pitching the tent and leaving the sick, we went on with the provisions. Jones and Gray are very stiff, and I am beginning to feel the pains in my legs too.

Craig and Dobing cannot walk at all to-day, they are crawling and lying down every 20 yards.

Camped at 7.30 A.M. The floe very wet.

Started 9.30 P.M.
Camped 6.30 A.M.
Lunch $1\frac{1}{2}$ h.
Marching $7\frac{1}{2}$ h.
Wind. Wr. Ther.
S.W. 6 to 7 b.c.q. +35°.
Calm b.c. +32°.
S.W. 2 ,, +38°.
Dist. trav. $1\frac{3}{4}$ m.
,, made gd. $1\frac{3}{4}$ m.

Friday 23rd, and Saturday 24th June.

It has been blowing again, and I have caught cold in my back. Dobing's leg is so red and so inflamed that I am afraid of something serious happening. Craig cannot stand, so we must make three trips to-day and carry them both. We are still working towards the bottom of the bay.

By 2 A.M., June 24th, we had advanced the whole party one mile; Gray and I then had to go back again for the canvas boat, making seven journeys.

By the time we got to the tent again it was blowing so hard in our faces that further advance was impossible, so we had to stop where we had pitched the tent for lunch. I was getting very anxious at the state of things; all the men were getting so bad that I did not think we could cross the land without help; and we were still a long way from Polaris Depôt.

In order to get a view of the plain and see where to cross it, I started for the land and went up to the top of the hills, but without any good result, as I could not see far enough.

What I saw of the plain however was not encouraging, it was a good deal up and down, and not much snow upon it. As I walked back, I made up my mind to reach the land the next march at all costs; pitch the tent and leave the sick in the care of Gray and Jones whilst I walked over to Polaris Bay for assistance; if there was no one there, I intended coming back and staying with the sick, whilst I sent Jones and Gray to the depôt. We eat so little that the provisions left would have lasted us about 12 days, and in that time the sick might have got across, though it was not very clear how.

The wind was still so strong when I got back, that there seemed no chance of starting again that march, and soon after we spread the bedding and went to bed; no one caring for supper.

Started 8 P.M.
Camped 2 A.M.
Lunch 2 h.
Marching 6 h.
Wind. Wr. Ther.
S.W. 2 to 4 c.q. +29°
S.W. 7 to 8 c.q. +28°
Dist. trav. 7 m.
,, made gd. 1 m.

Saturday 24th, and Sunday 25th June.

It blew very hard all day, which distressed me very much, for to a party in our predicament such a delay is very serious.

Began to go down at 8 P.M., so Jones got breakfast ready; our first meal for a long time.

This warm wind is making water fast on the floe, and our tent is now on an island.

Packed the sledge with Dobing and all the provisions, intending to come back for the remaining three sick, as three trips is too long.

Started at 11.30 P.M.; Jones and Gray very lame; making for the shore.

We were getting on pretty well, though not fast, when we discovered a dog-sledge

Started 11.30 P.M.
Camped 8 A.M.
Marching $8\frac{1}{2}$ h.

Wind. Wr. Ther.
S.W. 2 to 3 } b.c. +28°
,, +34°
Calm ,, +25°
Dist. trav. 6 m.
,, made gd. 4 m.

approaching, and soon after had the pleasure of shaking hands with Lieutenant Rawson and Dr. Coppinger, who were accompanied by Hans and 8 dogs.

This was at 2 A.M., June 25th.

Whilst Hans and the dogs took our first load on to the land on their sledge, Lieutenant Rawson, Doctor Coppinger, and myself, walked back to the tent with ours; Rawson telling me all that had happened since we had parted.

Dr. Coppinger saw the sick men, who were quite revived at the idea of speedy relief, and packing them up, we started with them for the land; the dogs coming back met us and relieved us of our load, and everyone was safely landed by 8 A.M.

Coppinger has examined each of the sick men, and is very desirous of getting to Polaris Depôt, as Paul and Jenkins are in a critical condition.

He is giving them the lime juice and preserved meat that he brought with him.

Monday, 26th June.

Started 3 A.M.
Camped 8 A.M.
Marching 5 h.
Wind. Wr. Ther.
S.W. 2 to 4 } b.c. +33°.
,, b.c.q. +35°.
Dist. trav. 5 m.
,, made gd. 5 m.

It appears that we are about 21 miles from Polaris Bay, but to-day we are only going as far as a depôt 5 miles off, while Hans tries to get a seal. Sent the provisions and gear on by the dogs to the depôt, whilst the three officers with Gray dragged the four sick men on the big sledge; the dogs came back in about an hour, and taking the sledge we were all at the depôt by 8 A.M.

The tents were pitched, and the sick put in.

Hans tried all day for a seal, but without success. The sick are in much better spirits, but poor Paul, who has caught a bad cold, is coughing very much.

Tuesday, 27th June.

Dr. Coppinger finds that Paul is much worse this morning, and we are going on Hall's Rest.

Started 10.30 A.M.
Camped 7.30 P.M.
Lunch 1 h.
Marching 8 h.
Wind. Wr. Ther.
S.W. 2 to 3 } o.s. +29°
,, c. +31°
Calm +33°
Dist. trav. 6½ m.
,, made gd. 6 m.

Started at 10 A.M.; all the provisions and gear on the small sledge, drawn by the dogs, and the four sick men on the big sledge, which was attached by a long line to the small one, so that the officers could man the drag ropes.

We have proceeded all day like this, leaving Gray and Jones far behind, as they can only come along slowly.

Camped at 7.30 P.M.

Gray and Jones came in nearly an hour after; they can't work any longer.

Wednesday, 28th June.

Started 1.30 A.M.
Camped 11.30 P.M.
Marching 8½ h.
Wind. Wr. Ther.
N.E. 2 to 4 } b.c.
,,
2 to 3 ,,
,, ,,
Dist. trav. 3½ m.
,, made gd. 3 m.

It is so important that Paul and Jenkins should be brought to a state of rest as soon as possible, that Dr. Coppinger is going to take them straight in from here to Polaris Depôt (about 13 miles), on the 8-man sledge with the dogs; after he had gone, we packed the small sledge with the rest of the gear, except provisions, and putting Dobing and Craig on the top, we started with the sail up, and a fair wind for Polaris Bay, Gray and Jones walking behind.

We walked on as long as we could, and camped at 11.30 P.M., on a small patch of bare ground.

Our party, I am glad to say, is no worse, though Gray and Jones are much stiffer. I felt it too, but not much.

Thursday, 29th June.

As we expected the sledge back with the dogs, we did not start in the morning, to avoid shifting the sick men so many times. But to our surprise the whole day passed without a sign of their return, and I became uneasy, fearing that some accident had happened.

Friday, 30th June.

Started 7 P.M.
Camped 7 A.M.
Lunch 1 h.
Marching 11 h.

At 3 A.M. we heard the dogs outside, and found Hans, Regan, and Rayner, who had just arrived. They had been nine hours on the road, and both dogs and men were very tired; they brought me a letter from Coppinger, saying that his journey had been

very arduous, having taken twelve hours' hard work, but that the two men had borne it very well. They seemed to be getting a little easier, until mid-day on the 29th, when Paul took a turn for the worse, and failing rapidly, died at 5 P.M., 29th June.

Hans, who had been working so hard for the last few days, was too tired to go on again without a rest, so the three had supper and turned in.

In the meantime Lieutenant Rawson, with the dogs, returned to the camp of the 28th for the provisions.

At 7 P.M., packing all the provisions and gear on the small sledge, and the two sick on the 8-man, we started, the dogs dragging the two sledges. While Lieutenant Rawson with his party took the sledges round by the only practicable way to them, I took Gray and Jones slowly over the hills, arriving at the Polaris Bay depôt at 7 A.M.

Wind. Wr. Ther.
Calm o.
" "
" "
Dist. trav. 6½ m.
" made gd. 6½ m.
" trav. by Lieut. Rawson, 12 m.

Saturday, 1st July.

Arriving at Polaris Bay Depôt at 7 A.M., we were warmly received by Coppinger and Lieutenant Fulford.

Lieutenant Rawson and his party arrived at 11.30 A.M., after very hard work.

Doctor Coppinger took charge of the sick, and put them in a tent by themselves, in which he intends sleeping, so as to be close at hand.

Though three of them are in a critical condition, with rest and good food he hopes they will soon be out of danger.

As men and dogs are very tired, the day has been given up entirely to rest.

Sunday, 2nd July.

Had church in the big tent, and read the morning service, all the men joined heartily in the general thanksgiving, and in returning especial thanks for our preservation and safe return.

Hans shot a Usuk seal, which will furnish food for the sick for many days.

Monday, 3rd July.

The doctor has made the sick men very comfortable, and got his sick quarters into thorough working order. There is great improvement in their spirits and appetites already.

Wind. Wr. Ther.
Calm b.c. +39°

We buried the remains of Charles W. Paul, A.B., beside those of J. Hand, A.B., who had died on the 3rd June, the day that Lieutenant Rawson and his party reached this place.

The sledge flags were half-mast high on each tent, and three volleys were fired over his grave.

Tuesday, 4th July.

The sick progressing favourably. Lieutenant Rawson, Hans, and the dogs have gone for the small sledge that they left about three miles off the day they arrived here.

Calm o.c. +37°

Wednesday, 5th July.

7 P.M. It commenced to rain.

N.W. 3 to 4 +46°

Thursday, 6th July.

Rained all night.

N. 5 o.r. +46°.

Friday, 7th July.

11 A.M. Commenced to rain. Rained all day.

Var. o.r. +47°

Saturday, 8th July.

Wind. Wr. Ther.
Calm b.c. +47°

Fine day. Dried everything.
Hans shot a Neitsuk seal.

Sunday, 9th July.

Calm b.c. +45°

I want to send to the "Discovery" to inform Captain Stephenson of our condition, but there is not a boat small enough, and it is very late to start without one.

Monday, 10th July.

S.W. o.c. + 45°
1 to 3

Hans thinks if there is no water on the floe, the dogs could get across in a day and a half.

See page 401.

I am writing an account of our proceedings to Captain Stephenson. (Copy herewith inclosed.)

Tuesday, 11th July.

S.E. 2 b.c. +49°

Lieutenant Fulford and Lieutenant Rawson have both volunteered to go across with the dogs.

Fulford is to go; he will start to-morrow with Chatel and Regan, and the dog-sledge.

Hans does not go, as we want him to shoot seals for the sick.

Wednesday, 12th July.

N.E. 1 b.+47

Fulford started this evening at low tide.
The inshore ice now is very bad, and it took them a long time to get clear of it.
I hope he will have a quick and safe passage.
Dogs and men were in good form.

Thursday, 13th July.

E. 2 b.c. +49°

Fulford is to acquaint us of his safe arrival by flashing signal from Distant Cape.

Friday, 14th July.

N.E. +45°
2 to 4

No seal meat left. Hans has gone hunting.
Sick greatly improved.

Saturday, 15th July

S.E. 1 b.c. +45

Looking out for signals, but a fog bank has come down the channel.
Lieutenant Rawson shot three geese. We miss the seal meat.

Sunday, 16th July.

W. 2 b.c. +40°

The sick were able to come to church in the big tent.
Dr. Coppinger shot three geese.

Monday, 17th July.

N.N.E. 5 c. +44°

No signal. Hans away hunting. Shot a Neitsuk. Rawson and Coppinger shot four geese.

Tuesday, 18th July

N.N.E. b.c. +44°
4

Fog in the channel. No signal.

Wednesday, 19th July.

6 P.M. Captain Stephenson and party of 6 men arrived from Discovery Harbour with boots and medical comforts for us.

Thursday, 20th July.

Put the new party on an allowance. T. Simmons, and David Stewart shot a musk ox, the only one ever been seen here. Wind. Wr. Ther. N.W. 2 b.c. +51°

The sick are receiving port wine.

Weight of meat 126 lbs.

Friday, 21st July.

All my party, including myself, are on sick rations, and get vegetables and port wine. S.E. 1 c. +39°

Simmons and Stewart shot four geese.

The ice is getting loose near the shore.

Saturday, 22nd July.

Rawson shot six geese and Simmons one duck. They wont rise now that they have their young, so they are easily slaughtered. N. 1 to 5 o.r. +37°

Sunday, 23rd July.

Rained in the morning. Had no church, only prayers. S.W. 2 o.r. +37°

Monday, 24th July.

The ice now is loose in the middle of the channel, but the mass of it is still unbroken. N.N.E. 2 to 6 o.q. +34°

Tuesday, 25th July.

This wind has driven the ice away from this shore, but it remains about 3 miles off. N.N.E. 4 to 6 b.c. +33°

Wednesday, 26th July.

The wind has fallen, and the ice is all back again. Calm o.c. +36°

Thursday, 27th July.

The Captain starts for the ship on Saturday, taking with him Lieutenant Rawson, William Jenkins, Frank Jones, of our party, and leaving us J. Murray and Thomas Darke, privates, R.M.L.I.

Friday, 28th July.

The Captain, with Rawson and Coppinger, went to the top of the hill to inspect the floes. They report well of the ice. N. 1 b.c. +37°

Saturday, 29th July.

The Captain and his party started for the ship; we are to follow when Dobing and Craig are strong enough, or on Friday. Calm b. +39°

Sunday, 30th July.

Dull weather. Had church. S.W. 3 o.m. +35°

Monday, 31st July

The summer is over, and the temperature is inclined to go down. The ice has moved a little since the Captain left. All the men went up the hill. Dobing and Craig are trying their legs.

Tuesday, 1st August.

Wind. Wr. Ther.
N. 1 to 2 b.c. +36°

Coppinger and I procured a stone for Paul's grave. Employed cutting the inscription.

Wednesday, 2nd August.

Engraving the tombstone.
Turned the 20-foot ice-boat over, and banked her up for the winter.

Thursday, 3rd August.

S.W. b.c. +33°
1 to 2

Finished cutting the inscription, and put up the stone.
Took an inventory of all we should leave here.

Friday, 4th August.

W.S.W. s.o.m.
3 to 4 +37°

It is blowing and snowing, and so thick that we shall not be able to start until it clears.
Took the boat to the best point for starting.

Saturday, 5th August.

N.N.E. o.q.m.
7 to 9 +31°

It cleared about noon; but while we were getting ready it came on to blow.
Now at 6 P.M. it is blowing hard and the ice is 4 miles from the shore.

Sunday, 6th August.

N.N.E. o.q. +34°
5 to 7

Read prayers only, as the other books were packed up, and on the beach.
Still blowing hard.

Monday. 7th August.

N.N.E. o.c.q.s.
8 to 9 +33°

About noon the wind fell suddenly, and we prepared for a start; but before we were ready it recommenced again.
Blowing hard; replaced the gear and turned in.

Tuesday, 8th August.

A bright beautiful day, but still blowing.

Everything is packed up and ready, and we are only waiting for the wind to go down. A thick mist lying in the channel, indicates open water, but prevents us seeing what the ice is doing.

Noon. The wind is going down, and the clouds clearing away off Cape Lupton; a sure sign of fine weather.

Went up the hill as the mist cleared away, to inspect the ice; a great change has taken place; the old ice of the basin has gone south apparently, and is replaced by large and heavy floes from the north; they are still travelling at a great rate in consequence of the wind.

It is evident that we shall have a lot of boat work. I wish we could take the 20-ft. ice-boat, but she is too heavy. We must wait until it is quite calm, as the 15-ft. ice-boat when loaded is only 3 inches out of the water.

9 P.M. It is now quite calm as far as we can see. Closed the house; secured everything, and started at 10 P.M., in the 15-feet ice-boat, with the sledge towing astern.

We are so deep and the sledge so heavy, that we are going very slow; pulled nearly to Cape Lupton, and then took the ice, shaping course for St. Patrick Bay. After two hours' work entered a large space of water; it was a time of great anxiety to me, as we could barely keep the water out of the boat, it was 3 miles broad. Disembarked on the opposite side, and placed the boat on the sledge, and started across the floe; during the rest of the march we proceeded in a similar manner; each time we embarked or disembarked it was necessary to unload the boat, either to launcl her or haul her up.

Though we seem to have been drifted south, we have made very good progress, and when we camped at 2.20 P.M., we had been 16 hours at work and had done 10 miles.

The convalescents Gray, Dobing and Craig are standing the work well.

I am sorry to find that the ice we are on is in motion, drifting south.

Wednesday 9th, and Thursday 10th August.

I have been up several times watching the ice, and now that a little breeze has sprung up we are drifting faster; so I called the men, and we prepared for a start.

Started at 9.50 P.M. We must have been swept back a long way during our halt to the south and east. Worked hard until lunch to make it up, amongst high but small floes, surrounded by rubble. It would take much too long, and would be difficult to describe the variety of obstacles, and delays which we met with, and we have made so little way, that I don't think we have even kept our ground against the southerly drift. Now the ice appears to be stationary, and we are stopped for lunch.

Started again in an hour and struck straight in towards Bellot Island, to get out of the influence of the drift.

Camped at 11.30 A.M., having been 14 hours at work; Dr. Coppinger is watching the convalescents, as it wont do to overwork them.

We are much farther south than we were yesterday, and not so far across.

Thursday 10th, Friday 11th, and Saturday 12th August.

We have been drifted south several miles during the halt, and matters are looking serious. We are now abreast of Cape Lieber, and if this goes on we shall be swept into Kennedy Channel, and unable to regain the ship.

Coppinger and myself are quite of opinion that an effort must be made, for even with the very hard work that we are doing now, we are losing ground every hour, even on the march we hardly seem to recover it.

Started at 11 P.M., with the intention of going in straight for Cape Baird, and reaching it before we stopped.

We worked steadily on to lunch, then from lunch on to camping time.

At that time a breeze sprang up from the west, and set the ice in motion, clearing it away from Cape Lieber.

The water was making fast on the west side of Kennedy Channel, everywhere the ice was on the move, and we were obliged to go on.

We had been slowly going south all day, and now Cape Baird was in a line with Bellot Island, and we could not see the south shore of Petermann Fiörd. There was no time to take angles or bearings, or even to keep a record of events. The change from sledging to boating, and *vice versâ*, became so frequent and hurried, that we had not time to unload, but did everything at full speed, to the imminent risk of both sledge and boat.

At about 10.15 P.M. the wind changed to the south-east, and began to blow the ice back again, and from that time we made real progress; eventually reaching the land by boat between Cape Lieber and Cape Baird at 7 A.M., 12th August, after having been under way 35 hours.

The men, and especially the convalescents, are dead beat.

Sunday 13th, and Monday 14th August.

As there was no danger of being drifted, I let them sleep on, while Coppinger and nyself walked to Cape Baird to examine the ice in Lady Franklin Sound.

It was getting very misty, but we were in time. All the ice that was out yester-

day is back again close to the shore; it seems quite fast between Bellot Island and ourselves.

Saw *two* ships lying in Discovery Bay. The "Alert" being down made me think that they might be waiting for us, so we built a cairn and went back; had lunch and started by boat through dense rubble for a short distance.

Worked steadily from 7 A.M. until 5 A.M. (14th), with two halts for food.

I was very anxious to get over in one march, but it coming on thick, and Doctor Coppinger representing it as advisable for the sake of the men not to go on, we camped.

We could see the "Alert" quite plainly when the fog lifted.

We have been at work 22 hours; no boating; all dragging; this ice though broken up in some places has not yet moved.

Monday, 14th August.

While we were having breakfast preparatory to a start, we heard a cheer, and running out met Commander Markham and his party, who had left the "Alert" to come to our assistance. They brought us a supply of most tempting provisions, fearing that we might be in want.

Soon after we started in their company, and reached the "Alert" without further accident.

We were most warmly welcomed by Captain Nares and all the officers, who fed us and sent us to bed.

Probable distance travelled from Polaris Bay to Bellot Island, 60 miles.

Tuesday, August 15th.

Left the "Alert" in the whaler, and crossing Discovery Harbour reached our own ship by 1 P.M., August 15th, 1876.

L. A. BEAUMONT,

Lieutenant, in Command.

Abstract of Journey.

Number of days absent from the ship	132 days.
Ditto travelling	92 „
Ditto at Polaris Bay	37 „
Ditto of journeys actually performed	81
Distance travelled	453 miles.
Greatest distance travelled in one march	9 „
Least ditto ditto	1 „

Greatest cold recorded on { 6th April, air −45°. / 15th „ tent −29°. }

Greatest heat recorded on { 20th July, air +50°. / 7th June, tent +75°. }

Number of cairns built 7

At 1.—Repulse Harbour	with records.
2.—Stanton Gorge	do. and provisions.
3.—Dragon Point	record and chart.
4.—Reef Island	record.
5.—Newman Bay	record and provisions.
6.—Hall's Grave	record.
7.—Cape Baird	nil.

SEXTANT ANGLES AND COMPASS BEARINGS.

April 25th. Sextant angles taken in Robeson Channel—

Punch Mountain.	zero.		Centre of Wrangel Bay ..	51°	10′
Hall's do	14°	12′	Cape Frederick VII	57	24
Degree Hill	23	26	Arthur's Seat	82	24
South cape, Repulse Harbour	50	45	Cape Union, highest cliff ..	91	8
The Gap	67	55	Cape Union Peak, North of Cape Union	113	54
Cape Brevoort	89	00	Black Cape	133	8
Cape Sumner..	100	58	Peak, Cape Union	zero.	
Cape Lupton, or extreme ..	114	2	Cape Rawson	26°	21′
Extreme of Grinnell Land ..	125	50	Do. Joseph Henry	29	21
Cape Brevoort	zero.				
Do. Beechey	48°	8′			

April 27th. Compass bearings from Cairn, Repulse Harbour—

South cape of Harbour ..	332°	North cape of Harbour ..	162°

Compass bearings taken from Drift Point. Variation 90° (approximate)—

North cape, Repulse Harbour	345°		Black Cape	29°	00′
Black Horn	167		Cape Frederick VII.. ..	4	30
Cape Stanton	162		Cape Rawson	41	00

April 29th. Sextant angles taken from Drift Point—

North cape, Repulse Harbour	zero.		Mount Julia	63°	57′
Cape Frederick VII	17°	58′	Mount Maria	66	12
Highest cliff	37	24	Cape Joseph Henry	67	42
Peak, Cape Union	44	51	Black Cape	zero.	
Black Cape	52	45	Cape Stanton	124°	28′
Mount Pullen	55	21	Peak of do. (or Mount Stanton)	128	16
Cape Rawson	58	23			

May 5th. Sextant angles taken from Stanton Gorge, Depôt Hill—

North cape, Repulse Harbour	zero.		Cape Union, highest cliff ..	27°	30
Cape Murchison	0°	50′	Peak, Cape Union	33	10
Cape Beechey	2	20	Black Cape	40	20
Wrangel Bay	5	50	Cape Rawson..	45	16
Cape Frederick VII	13	00	Extreme of land	50	22
Arthur's Seat	25	3			

May 6th. Sextant angles taken from a hill about three quarters of a mile S.W. from Cape Stanton—

Highest cliff (Cape Union) ..	zero.		Staff on hill	zero.	
Peak, Cape Union	5°	43′	Extreme of land	12°	26
Black Cape	12	41	Do. of Cape Lowe ..	19	34
Cape Rawson	17	43	Mount Lowe	33	24
Staff on hill	124	38	Mount Punch	51	48

Angles taken from low part of Cape—

Highest cliff (Cape Union) ..	zero.	Black Cape	12° 33′
Peak, Cape Union	5° 49′		

Angles taken from Cape Lowe—

Mount Lowe	zero.	Extreme of Cape Stanton ..	102° 36′
Degree Hill	47° 17′	North cape, Repulse Harbour	103 54
Rock Hill Peak	88 2	Arthur's Seat..	126 25
Hall's Mountain	109 55	Highest cliff..	128 22
Mount Stanton	141 31	Cape Union Peak	133 37
Degree Hill	zero.	Black Cape	139 34
Mount Stanton	94° 16′	Do. do. (?)..	142 15

Compass bearings from Cape Lowe—

North cape, Repulse Harbour	342° 30′	Mount Stanton	333° 00′
Cape Stanton	341 30	Rock Hill Peak	279 30

May 7th. Sextant angles taken from the Spit in Frankfield Bay—

Mount Punch	zero.	Mount Lowe..	zero.
Bottom of bay	21° 8′	Highest cliff (Grant Land ..	60° 35′
High Cliff	48 18	Peak Cape Union	65 34
Line of spit	137 11	Black Cape	71 25
Mount Lowe..	99 5	Extreme of land	80 58

Extreme of North Greenland visible outside Point Rest–

Point Rest	zero.	Mount Punch	49° 10′
Mount Wyatt	18° 55′		

May 9th. Sextant angles taken from Point Rest Camp—

Mount Lowe..	zero.	Cape Union Peak	45° 55′
Highest cliff (Grant Land) ..	41° 10′	Black Cape	51 30

Sextant angles and compass bearings from Fox Point—

	Angles.		Bearings.		Angles.		Bearings.
Punch Mountain.. ..	zero.			Highest cliff, Grant Land	39°	55′	
Degree Mountain ..	65°	50′		Extreme of United States			
Rock Hill Peak	84	41	306°	Range, north end ..	49	33	
High Cliff (Frankfield Bay)	94	23	317	south end ..	55	23	
Mount Lowe	99	36	321	Extreme of North Green-			
Mount Stanton	112	3	334	land	zero.		
End of spit (?)	115	35		Mount Punch	77°	34′	145°
North cape of Repulse				Point Rest			328
Harbour	117	40					
Mount Lowe	zero.						

Sextant angles taken from the Downs—

Extreme of North Greenland..	zero.	High Cliff, Frankfield Bay ..	23° 5′
Mount Albert..	1° 50′	Mount Lowe	24 40
High Land	7 40	Mount Stanton	30 35
Mount Wyatt..	60 40	North cape, Repulse Harbour..	35 6
Do. do.	zero.	Mount Stanton	zero.
Degree Hill	101° 10′	Highest cliff, Grant Land ..	23° 47
Rock Hill Peak	111 39	Peak, Cape Union	27 58
Hall's Mountain	117 24	Black Cape	32 55
Degree Hill	zero.	Extreme of land	55 43

Angle between extreme of Grant Land and extreme of North Greenland 114° 15

Compass bearings from the Downs. Variation 87° (approximate)—

Extreme of Grant Land ..	32°	North cape, Repulse Harbour..	341°
„ North Greenland ..	142		

May 10th. Sextant angles taken from the Downs, 1½ mile west of Mount Wyatt—

Left extreme of Cape Britannia Land, or North Greenland	zero.		Mun tWindham Hornby ..	54°	48′
Right ditto	11°	45′	Mount Wyatt	134	23
Extreme of Stephenson Island..	15	44	Mount Punch		
Extreme of mainland (?) ..	19	38	Highest cliffs, Grant Land ..	zero.	
Mount Hart	21	5	Peak, Cape Union	3°	54′
Mount May	21	50	Black Cape	8	50
Mount Hooker	22	51	Cape Rawson	12	31
Highest peak, or Mount Coppinger	30	33	Hummock	51	24
Mount Farragut	40	28	Do.	zero.	
			Left extreme of Cape Britannia	85°	4′
			Mount Albert	85	35

May 10th. Sextant angles from the summit of Mount Wyatt (2,050 feet)—

Left extreme of Cape Britannia Land	zero.		Fisher Peak	59°	27′
Do. do. of Stephenson Island	16°	50′	Mount Windham Hornby	zero.	
Extreme of mainland (?) ..	18	34	Punch Mountain	77°	5′
Mount Hooker	22	4	Degree Hill	133	27
Mount Coppinger	30	00	Do. do.	zero.	
Mount Farragut	38	25	Rock Hill Peak..	4°	55′
Dragon Point	34	32	Hall's Mountain	8	7
Mount Windham Hornby ..	52	41	High Cliff, Frankfield Bay ..	10	10
			Cape Union	41	2

Compass bearing of left of Cape Britannia Land (or Beaumont Island) 135°.
Variation 87° W.

Compass bearings from Cape Bryant—

End of east cliff	202°		
Cape Fulford	228	Mount Wyatt	282°

Var. 85°W.

May 12th. Sextant angles taken from Cape Archer—

	Angles.		Bearings.		Angles.		Bearings.
Mount Hooker	zero.			End of east cliffs ..	82°	14′	243°
Mount Coppinger ..	8°	48′		Do. West	92	46	252
Dragon Point	15	8	174°	Cape Bryant			52
East Gap	69	58	229				

Compass bearings 8½ miles from Cape Archer.

Cape Bryant	13°	St. George Fiörd	
Cape Fulford	352	Dragon Point	176°
End of land, west side.. ..	279	Mount Hooker	155

May 13th. Sextant angles taken from 1½ miles from Dragon Point.

Extreme of mainland	zero.		West Gap	30°	11′
Mount May	2°	52′	Mount Wyatt	81	46
Mount Hooker	4	50	Cape Fulford	82	8
Mount Coppinger	16	17	Do. do.	zero.	
Mount Windham Hornby ..	73	45	Hummock	46°	20′
Fisher Peak	120	49	Do.	zero.	
Do. do.	zero.		Extreme of mainland (?) ..	110°	14

May 13th. Compass bearings taken from Dragon Point—

Cape Fulford	354° 00′	Cape Bryant, from floe one mile from Dragon Point	
Do. Bryant	13 30	Cape Cleveland	202°

May 14th. Sextant angles from Ice Hills (incomplete)—

Left of Cape Britannia Land ..	zero.	South end of Dome Cliff ..	30°
Left of mainland	13° 52′	Mount Coppinger	36
Mount May	18 14	Rainbow Cliff	57
Mount Hooker	21 2	Cape Cleveland..	72

Angles taken from Camp—

South end of Dome Cliff ..	zero.	Patch in cliffs	73°
Cape Cleveland..	45° 15′	Do. do	zero
False Cape	59 26	Staff do.	46°
Cape Gray	92 22	Do.	zero.
Craig Peak	112 4	South end of Dome Cliffs ..	129°
Do.	zero.		

May 15th. Sextant angles and compass bearings from Craig Peak—

	Angles.	Bearings.		Angles.	Bearing
End of mainland ..	zero.		Right nipple ..	29° 17′	262
South end of Dome Cliff	15° 23′		Do.	zero.	
Cape Cleveland ..	26 38	129°	Ravine	55° 39′	
Cape Gray	103 21	232	Do.	zero.	
Cape Cleveland ..	zero.		Brown point.. ..	57° 59′	58
Cape Gray	77° 57′		Do.	zero.	
White Point ..	83 52	238°	End of mainland ..	72° 19′	
Right nipple.. ..	107 20		Left of Chalkley Island		253
Cape Gray	zero.		Right do. do.		265
White Point ..	5° 57′				

Sextant angles taken from Chalkley Island—

	Angles.	Bearings.		Angle.	Bearing
Cape Gray	zero.	231° 30′	White Point ..	11° 12′	234° 30
Do. Buttress ..	4° 1′	227 00			

May 15th. Sextant angles and bearings taken from Station in St. Andrew Bay—

	Angles.	Bearings.		Angles.	Bearings
Outer Cape Gray	zero.	199°	Right nipple	38° 18′	
North end of horizontal cliffs	4° 59	204′	The thumb	59 54	288
South do. do.	13 9	212	Do.	zero.	
North end of solitary do.	17 4	216½	Patch	103° 33′	
South do. do. ..	18 49	218	Do.	zero.	
End of plain cliffs	21 6	221	Craig Peak	42° 54′	85
Cape Buttress	26 16	225½	Do.	zero.	
White Point (very indistinct)	29 10	229	False Cape	36° 46′	144½

Sextant angles from Cape Cleveland—

	Angles.	Bearings.		Angles.	Bearings.
Ravine		331	End of Dome Cliff.. ..	12° 46′	142°
Craig Peak..	4° 54	336	Rainbow Cliff	45 55′	175
Mount Windham Hornby..	16 16	346	Ledge Peak	60 49	190
Dragon Point	54 45	24½	Middle point	73 11	203
Do.	zero.		Do.	zero.	
Mount May	104 6	129	Ravine	127° 18′	
Do.	zero.				

May 16th. Sextant angles taken from Tower Point, Castle Island.

	Angles.	Bearings.
Left cape, Britannia Land..	zero.	113°
End of mainland	4° 32′	116½
Centre of Mount May ..	8 21	121½
End of Dome Cliff.. ..	17 12	131
Mount Coppinger.. ..	29 46	142
Mount Farragut	47 26	160
Rainbow Cliffs	53 11	165
Wedge Island Peak ..	60 46	173
Ledge Peak	71° 14′	183½°
North end of horizontal cliffs	106 25	218½
South do. do. ..	111 6	223
North end of solitary cliffs	113 10	225½
South do. do.		
End of plain cliffs.. ..	116 3	228
Cape Buttress (top) ..	123 00	235

May 17th. Sextant angles and compass bearings from the South point of Reef Island—

	Angles.	Bearings.
Ledge Peak	zero.	
North end horizontal cliffs	28° 50′	
South do. do.	30 31	
North end of plain cliffs ..	30 43	236°
South do. do. ..	34 4	
North end of Blue Cliffs..	34 40	
South do. do. ..	36 19	244½
Cape Buttress	38 55	257½
Left of Wedge Island (shoulder)	51 32	
Right of do.	65 19	271½
Cape Buttress	zero.	
White Point	32° 36′	
Cape Gray	55 33	299
Left of Wedge Island (shoulder)	zero.	
Highest point (Castle Island)	71° 16′	329
Mount Windham Hornby	94° 35′	354°
Cape Gray..	zero.	
Tower Point (Castle Island)	37° 11′	337
Cape Cleveland	55 59	356
Dragon Point	67 35	8
Mount Windham Hornby	zero.	
Left of Reef Island (shoulder)	50 59	37
Right of do. do.	85 24	80
Dragon Point	zero.	
End of mainland	92° 10′	101
Do. do.	zero.	
Corner of Dome Cliff ..	12° 32′	112
Rainbow Cliff	71 14	
Do.	zero.	
Ledge Peak	33° 41′	204½

May 25th. Sextant angles and compass bearings from Cairn at Dragon Point—

	Angles.	Bearings.
Mount Wyatt	zero.	356°
Extreme of Cape Britannia	133° 9′	127
Do. do.	zero.	127½
Do. of mainland?..	18° 16′	145
Mount Hooker	24 22	151
End of Dome Cliff.. ..	35° 2′	162°
Mount Farragut	51 46	178
Wedge Island	65 50	192
Cape Cleveland	71 32	198

May 26th. Sextant angles and compass bearings from top of Mount Windham Hornby, 3700 feet—

	Angles.	Bearings.
Left extreme Beaumont Island	zero.	123°
Mount Albert	3° 55′	126
Left of Cape Britannia Land	10 18	132
End of mainland	12 10	
Highest peak, Cape Britannia Land	18 20	134
Mount Hooker	18 55	141
End of Dome Cliff.. ..	28 31	
Mount Coppinger.. ..	33 14	156
Mount Farragut	47 9	170
Centre of Reef Island ..	50 40	174
Rainbow Cliff	51 29	
Ledge Peak	62 38	185
Middle Point	75° 53′	
Cape Gray..	99 57	222°
Left of plain cliffs.. ..	100 47	
Cape Buttress	105 14	228
Do.	zero.	
Punch Mountain	120° 30′	
Do.	zero.	
Highest cliff, Grant Land	15° 33′	

ASTRONOMICAL OBSERVATIONS.

Date.	Observation.	Result.
May 5th.	Midnight meridian alt. (art. hor.) ; long. (app.) 56° W. ; temperature – 13°; I.E. + 1′. Obs. alt. ⊙ 17° 20′.	Lat. 82° 13′ 19″ N.
May 6th.	Sights for chronometer ; lat. 82° 14′ N ; long. 56° W. ; temperature – 3°; I.E. + 1′ Error of watch on "Alert," 3h. 45m. 58·6s. fast ; rate 1s. losing on 20th April. Watch showed 8h. 49m. 26s.; obs. alt. 30° 35′2″	Long. 55° 46′ W.
May 7th.	Midnight mer. alt.; long. 56° W. ; temperature – 4°; I.E. + 5′ (art. hor.). Obs. alt. ⊙ 18° 28′.	Lat. 82° 16′ 12″ N.
May 10th.	Midnight mer. alt.; long. 54° ; temperature + 9°; I.E. + 8′ (art. hor.). Obs. alt. ⊙ 30° 5′.	Lat. 82° 21′ 15″ N.
May 11th.	Sights for chronometer ; lat. 82° 22′ N. ; long. 53° W. (app.); temperature + 5°; I.E. + 5′. Error of watch on "Alert," 3h. 45m. 58·6s. fast on 20th April rate 1s. losing. Watch showed 9h. 31m. 26s.; obs. alt. 37° 27′46″.	Long. 54° 8′ W.
May 12th.	Midnight mer. alt. ; long. 51° W. ; temperature – 5°; I.E. + 5′ (art. hor.). Obs. alt. ⊙ 21° 4′ 30″.	Lat. 82° 18′ 4″ N.
May 13th.	Sights for chronometer ; lat. 82° 18′ N. ; long. 52° W. (app) ; temperature – 5°; I.E. + 5′. Error of watch on "Alert," 3h. 45m. 58·6s. fast on April 20th rate 1s. losing. Watch showed 10h. 15m. 41s.; obs. alt. 40° 41′ 48″.	Long. 52° 46′ W.
May 17th.	Meridian alt. ; long. 49° W ; temperature + 9°; I.E. + 5′ (art. hor.). Obs. alt. ⊙ 53° 59′.	Lat. 82° 13′ 57″ N.
May 25th.	Meridian alt. ; long. 52° W. ; temperature + 9° ; I.E. + 5′ 30″ (art. hor.). Obs. alt. ⊙ 57° 6′ 10″.	Lat. 82° 15′ 39″ N.

L. A. BEAUMONT,
Lieutenant.

COPY OF THE RECORDS LEFT IN THE CAIRNS AT REEF ISLAND, AND AT DRAGON POINT.

Reef Island, lat. 82° 15′ N., long. 49° 20′ W.,
(approximate),
22*nd May*, 1876.

The sledge "Sir Edward Parry," and party of seven men, commanded by Lieutenant Beaumont, of H.M.S. "Discovery," forming part of the Arctic Expedition of 1875, visited this island on the above date for the purpose of leaving this record. The party passed the island on the 18th, on their way to the east shore of these straits, intending to round the north point of that land ; but owing to the depth and softness of the snow they were unable to reach the shore before the time had arrived for turning back. The party waited for two days in the hopes of being able to ascend the mountain above the glacier, but thick weather and fogs have prevailed for the last four days.

According to orders, this record is left at the farthest land reached, but the skeleton chart and another are left at Dragon Point, bearing from this cairn.

The "Alert" and "Discovery," forming the expedition, arrived at Bellot Harbour (Discovery Bay), in Grant's Land, in latitude 81° 44′ N., and longitude 65° 3′ W., on the 26th August, 1875, where the latter ship wintered.

The "Alert" proceeded north, and went into winter quarters off the coast of Grant's Land, inside a barrier of hummocks, in latitude 82° 27′ N., longitude 61° 22′ W., on the 2nd of September. Sledging parties left the "Alert" in the autumn, and advanced as far as Cape Joseph Henry, latitude 82° 51′ N., from where the land was seen to trend towards the N.W., the farthest point being named Cape Aldrich.

Sledging parties left both ships this spring to explore in the following directions:—

Commander Markham, and Lieutenant Parr. 2 boats and 3 sledges; due north across the Polar Pack.

Lieutenant Aldrich. 2 sledges; north-west coast of Grant's Land.

Lieutenant Beaumont. 3 sledges; north coast of Greenland.

Lieutenant Archer. 2 sledges; Lady Franklin's Straits, and south-west coast of Grant's Land.

Dog-sledge parties have visited Polaris Bay, Repulse Harbour, and are now exploring the country in various directions.

The health of the expedition has been very good. No deaths have occurred.

L. A. BEAUMONT,
Lieutenant in command of party.

A record like this applicable to Dragon Point, and making mention of the chart left with it, was left at the cairn on the Point.

COPY OF LETTER TO CAPTAIN STEPHENSON, WRITTEN FROM POLARIS BAY.

(Private.) Hall's Rest, Polaris Bay,
Dear Captain Stephenson, 12*th July*, 1876.

I have naturally been anxious since we arrived here, that you should obtain the earliest information of our situation and circumstances, and have at last decided to send a party over with the dogs.

As we were 10 days overdue at the ship when we arrived here (1st July), we have kept a sharp look out every day in hopes of seeing somebody coming to us from the ship, and this expectation, together with the risk of sending a party over without a boat, and the difficulty with which we could spare any of the sound men, has induced me to delay our effort until now; however, as the time is slipping by, and it seems more desirable to me that you should know our condition as soon as possible, I have decided not to wait any longer, but send over at once.

I have taken every precaution I can think of with regard to the party, and especially enjoined that no unnecessary risk should be run, but that if the state of the ice should be such as to render the travelling hazardous, the party should return here.

So that you may understand what has and is preventing us from reaching the ship, I will briefly relate our doings since Coppinger left us (5th May), which was the last time you heard of us.

Dr. Coppinger had hardly left us, before Hand, who had joined my sledge in place of Emmerson, complained of great stiffness in his legs, which gradually began to show discoloured patches.

After suspecting it for two days, I became convinced that he was suffering from scurvy, and on the 9th of May determined to send him back with Rawson.

Rawson therefore started on the 11th of May, with orders, which for various reasons left it to him to decide on the spot on his arrival at Repulse Harbour, whether to cross to the "Alert," or go on to Polaris Bay. He had hardly started on his return, before Bryant also fell a victim to scurvy, though at the time his stiffness was attributed to other causes.

Hand steadily became worse, and on leaving Repulse Harbour (May 20th), Rawson, who had decided to go on to Polaris Bay, found it necessary to carry him on the sledge, he being quite unable to walk. With this addition to their load they worked their way overland through the Gap to Newman Bay; here Bryant had become so much worse that from that time he could no longer share in the work, but slowly followed the sledge, which sometimes left him far behind. Thus reduced to three men, with a heavy load, and but little provisions remaining, they arrived at the plain which separates Newman

from Polaris Bay. Trusting to the chart of this part which he had been provided with (which is totally wrong, and could not fail to mislead), he crossed it in the wrong place, got into deep soft snow and bad travelling, and only reached Hall's Rest by the most rigid economy of his remaining provisions, and the severest of hard work. They arrived on the 3rd of June, and Hand, who had been losing strength every day, now appeared to be failing fast; he died that night between 10 and 11 P.M.

The weather for the last few days had been thick and snowing, and now it came on to blow, and continued to do so for three or four days. On the 7th of June, Lieutenant Fulford and Dr. Coppinger returned from Petermann Fiörd. Coppinger examined the body of Hand, and pronounced scurvy to have been the cause of his death; he found Bryant in a critical state, and Regan also suffering from scurvy; luckily the lime juice and the seal meat which Hans procured, and the game they shot, were the remedies, and were close at hand, so that from that time they have steadily improved, and are now nearly well. Since the 15th of June they have been expecting us, and to account for our non-appearance I must return to the 11th of May, when Rawson left us. I told the remainder of my men when it was decided to send Hand back, to overhaul themselves, and if any suspected themselves of suffering from scurvy, to say so honestly, as this would be the last chance of turning back, but it turned out that everyone was quite well, and anxious to go on, so on we went. We continued to advance from that date, 11th May, until May 20th, when the very deep snow in which we had been travelling for four days brought us to a stand-still; the spare provisions which Rawson had been able to give us had put back the day of our turning back from the 19th to the 23rd, but the impossibility of reaching a more distant point through such deep snow, and the increasing sickness of Jenkins and Craig, who showed symptoms of scurvy, made a further advance very unadvisable.

I however waited at our furthest two days, both to give us all a rest, which we much needed, but more especially to obtain if possible a view from a neighbouring mountain. A long period of snow storms and fogs however followed, which quite defeated our object.

On May 26th neither Craig nor Jenkins could pull any longer, but walked along holding to the drag ropes for assistance. On the 28th Paul was in the same state, and with a crew thus reduced to four, we found ourselves obliged to make a depôt of all but the most necessary articles. Slowly we retraced our steps, but Paul and Jenkins were fast losing the power of walking. Early on June 3rd we arrived at our intermediate depôt (where we had parted with Coppinger), and only found it necessary to take half the provisions, the failing appetites having so economized ours. The same day Paul broke down completely, and from that date had to be carried on the sledge, being scarcely able to move hand or foot. Jenkins, scarcely able to walk, had to be waited for constantly, and made our progress very slow; while Dobing and Jones, who had for several days complained of stiff legs, were now unquestionably in the ranks of the scurvy stricken.

On the 7th Jenkins broke down, and henceforth had to be carried, and though Craig still walked, he compelled us to go very slowly. We arrived at Repulse Harbour on the 10th of June, late; feeling that the state of the sick was becoming critical, and that it was of the utmost importance to get them into suitable quarters without delay. I made an attempt to cross over to the "Alert," but at the very outset was turned back by the appearance of open water just outside Repulse Harbour. With two helpless, three lame, and only two sound, I did not dare to go on. Calculating then that our progress to Polaris Bay would he very slow, I took all the provisions left at the depôt, which though it gave us a heavy load, made us up to 18 days; thus replenished we started for Polaris Bay by way of the Gap.

June 13th. Dobing now unable to pull, walked behind with Craig; we also had to make two trips, taking the provisions on first, and then the sick. The Gap was almost bare of snow, but it was full of water, and the work of dragging a heavy sledge through mud and water, over stones and up and down steep slopes, came very heavy on the three who were left to pull. We reached Newman Bay on the 20th of June, and made the best of our way to the crossing place at the bottom of the bay the water was now making on the floe, and it was difficult to find a place to pitch the tent. On the 22nd it came on to blow so hard that we were unable to keep the tent pitched for several hours, and the sick, wet through from the drifting snow, suffered from the exposure, and from the subsequent long and cramped confinement in the half pitched tent; however, we still pushed on, anxious to reach the shore, for the floe was ankle deep in water where we were. On the 23rd Dobing and Craig had become so much worse that we had to carry them, thus making three trips, and going five times over the ground. Jones was almost

done for work, Gray becoming very stiff and sore, and lastly, myself feeling the first symptoms in my legs and gums. The sick were eating so little, that we had still sufficient provisions to last 10 or 12 days, but our strength was nearly spent. Late in the evening of the 24th we started for our night's work, determined to reach the shore before we pitched again, no matter what it cost, but I am glad to say we were not called upon for so great an effort, for we had not left the camp an hour, before we saw a dog-sledge coming towards us; it turned out to be Rawson, Coppinger, Hans, and the 8 dogs; it was by this time Sunday, June 25th. They had come just at the right time, and managed so well that we were soon all on shore, pitched in a dry place, and comfortably housed. The next day we went on to the depôt in Newman Bay, and the day after started on our way across the plain. Rawson, Coppinger and Hans were indefatigable in their exertions, and did the work of six men. I helped them as much as I could, while Gray and Jones, now that the absolute necessity for work was over, hobbled along slowly behind. That day we made such fair progress across the plain that it was determined to send Paul and Jenkins straight into camp at Hall's Rest. The next day both were worse and exceedingly weak, but the Doctor was especially anxious on Paul's account, who had become much worse in the last two days. Accordingly the next day Coppinger started with the two sick men on the 8-man sledge with Hans and the dogs. After twelve hours' hard travelling, the work having become exceedingly heavy from the absence of snow, which was disappearing rapidly, they reached Hall's Rest at midnight on the 28th of June; neither Paul nor Jenkins seemed the worse for their journey, and Coppinger hoped they would pull through that day; but in the afternoon Paul began to fail fast, his strength leaving him altogether, and he died at 5 P.M., June 29th. The 8-man sledge, with Hans, Regan, and Rayner, started to return to us the same evening. In the meantime whilst the first detachment was on its way to Hall's Rest, Rawson and I put Dobing and Craig on the 5-man sledge, with all the gear except some of the provisions, and helped by the sail, we started to meet Hans on his return. Rawson and I dragged the sledge, Gray and Jones walking behind; Rawson pulling enough for three; but the load was heavy, and the travelling becoming bad, we camped at 11 P.M., June 28th, having travelled three and a-half miles. Expecting the arrival of the sledge every moment; we did not move on the 29th. Hans, Regan, and Rayner arrived at 3 A.M. on June 30th, but all so tired that they were obliged to rest for some time.

We all started for our last journey at 7 P.M., June 30th; and while Rawson took the sledge round with the sick by the only practicable way left, we made a shorter cut for Hall's Rest over the shingle; though Gray and Jones were only able to walk very slowly, yet we reached the camp safely nearly three hours before the sledge. We were heartily welcomed by Fulford and Coppinger, who clothed, housed, and fed us immediately; the sledge arrived at 9 A.M., July 1st; Rawson and those with him having had to use the greatest exertions to get it over the shingle ridges, which were quite bare of snow. We were all very thankful that they were now all in under the Doctor's care, and no worse; but you may imagine how thankful I was that this long and arduous journey was over. Since Sunday, July 2nd, we have been mainly fed on seal meat, Hans having shot a large Usuk seal that day; we all like it very well, and the sick, whose appetites have revived in a most wonderful manner, are gaining strength daily, and steadily improving in health, though their legs are still powerless. Gray and Jones became worse after the arrival, but only as regards their walking, they were never laid up, and now I hope will mend. The support of the original party, increased since our arrival to fourteen, has necessarily diminished the Polaris depôt, more particularly as regards tea and molasses, but Rawson and Fulford have taken great care that these stores as well as all others were used with economy; the depôt book is regularly written up, and a correct list of what remains will be brought over by us when we leave.

Our present condition is, 3 bedridden, Jenkins, Dobing, and Craig; 3 lame, Jones, Gray, and myself (slightly); 1 convalescent, Bryant; and 7 in good health; Bryant, Chatel, Regan, and Rayner take turns in cooking, two of them being on each day. Hans is away after seals, which is really the most important item, furnishing as it does both food and fuel; Rawson, Fulford and Coppinger keep the camp supplied with game, which is by no means so plentiful as one is led to suppose.

Coppinger thinks that all the sick will be able to walk sufficiently to follow the sledge, but not to pull, by the 1st of August.

He is also of opinion that their recovery will be as certain and rapid here as it could be anywhere; seal meat, lime juice, and fresh air being plentiful.

If therefore you approve the plan, a party of eight should leave the ship about the 1st of August, and on their arrival we would start with the 20-ft. ice-boat, and a

party of six or seven effective men, making in all fifteen to drag. This I think would be the best plan; if this party is required to return to the ship now, more assistance will be wanted, as three of the sick must be carried.

Out of the depôt left, to take us across, the potatoes are being used and some of the rum for the sick, and as the molasses may be expended by that time, it will be safer to replace all three articles.

Hans remains with us to keep up the supply of seal meat, but it will be an advantage to us to be rid of the dogs when we cross with a boat later on. Many, like myself, have no foot gear to put on, their canvas boots being past all repair; 11 pairs of fisherman's boots will therefore be necessary for us to cross over in.

If it was possible to communicate before the 1st of August, in the event of our remaining here until then, I need not say how welcome it would be to get news from the ship and all in her, as well as news of the "Alert," also some books to while away the long hours.

All who remain, Rawson, Coppinger, and myself, send you our kindest greeting, also to our messmates; we hope soon to be with you.

Fulford will be able to explain everything not contained in this letter, which is already so long that I must bring it to a conclusion.

We are prepared to look out for looking-glass signals from Distant Cape on any forenoon, and if we had one and a signal book furnished to us, we would signal our state and condition.

The weather and state of the ice seem to be favourable to the attempt, the season I suppose is a very late one. There has not been a move in the ice *this* side yet. Coppinger is most assiduous and unremitting in his attentions to the sick, and they are fast regaining their strength, though they are still weak and powerless; his letter to Doctor Ninnis will probably contain a more full account of their state.

Believe me,
Yours sincerely,
L. A. BEAUMONT.

20th April, 1876.
H.M.S. "ALERT," at Winter Quarters,
(Latitude 82° 27′ North. Longitude 61° 22′ West).

Sir,

Taking command of H.M. Sledge "Discovery" you are to accompany Lieutenant Lewis A. Beaumont in his journey of exploration along the northern coast of Greenland, and act in accordance with such orders as you may receive from him.

I enclose a copy of his instructions for your guidance.

See page 338.

The prudence, skill, and zeal which you have invariably displayed whilst under my command, and your experience in Arctic travelling, gained in journeys amounting already this season to a distance of 270 miles, with a nearly constant temperature of seventy degrees below the freezing point, insures me that the duty allotted you will be ably performed.

G. S. NARES, *Captain R.N.*,
Commanding Arctic Expedition.

To Lieutenant Wyatt Rawson.

Latitude 82° 23′. Longitude 52° W. (app.)
10th May, 1876.

Sir,

It having become necessary, in my opinion, that James Hand should return as soon as possible to where suitable food and nourishment can be obtained, as well as the advantage of medical advice, in consequence of his showing unmistakeable symptoms of scurvy, you are to make the best of your way to the depôt at Repulse Harbour, provisioning your party on the way with 40 rations from the depôt at Stanton Gorge. Arrived at Repulse Harbour, you are to inspect the records left in the cairn, and on the information contained as to Dr. Coppinger's movements, your own opinion as to the state of the ice, as well as the condition of Hand's health, you are to decide whether to go to H.M.S. "Alert," or make your way to Polaris Bay; in either case leaving a notice of your decision with the other records.

L. A. BEAUMONT,
Lieutenant in Command of Party.

Lieut. Wyatt Rawson,
H.M. Sledge, "Discovery,"
N. Greenland.

16th August, 1876.
H.M.S. "Discovery," at Discovery Harbour.

Sir,

In obedience to the orders I received from Capt. G. S. Nares, a copy of which is herewith enclosed, I have the honour to inform you that I left H.M.S. "Alert" on the 21st of April with H.M. sledge "Discovery;" my crew consisting of the men named in the margin, to explore the north coast of Greenland, under the orders of Lieutenant L. A. Beaumont. We crossed Robeson Channel, and arrived at Repulse Harbour on the 27th of April, from which place George Emmerson, Chief Boatswain's Mate, returned to H.M.S. "Alert." I then advanced in company with Lieutenant Beaumont and Dr. Coppinger to Cape Stanton, where we arrived May the 5th, and from which place Dr. Coppinger returned to Repulse Harbour with his crew, and on May 11th, in consequence of the illness of J. Hand, A B., one of Lieutenant Beaumont's crew, who was suffering from scurvy, I received orders from him to return to H.M.S. "Alert," or to proceed to Polaris Bay for the purpose of placing the sick man under medical care. I enclose a copy of these orders for your information. I therefore started at 3.45 a.m., on May 11th, with the same crew, J. Hand, who was too ill to pull, walking by the drag rope. On my arrival at Repulse Harbour on May 19th, I found from the records there that Dr. Coppinger had not crossed to H.M.S. "Alert," I therefore decided to push on for Polaris Bay, where I arrived on the 3rd of June, after having carried Hand since May 21st, but I regret to inform you that he died at 10.30 p.m., or about six hours after his arrival at the depôt.

See Page 404.

George Bryant, 1st Cl. P. O.
Michl. Regan, A.B.
Elijah Rayner, Gunner, R.M.A.

See Page 404.

George Bryant (1 Cl. P.O.), had been unable to pull since the 23rd of May, also in consequence of scurvy, and Michael Regan, A.B., was afterwards found by Dr. Coppinger to be suffering from the same disease.

On June 7th, Lieutenant R. B. Fulford and Dr. Coppinger returned to Polaris Bay from Petermann Fiord, with Frank Chatel (1 Cl. P.O.), Hans (the Esquimaux), H.M. sledge "Faith," and 8 dogs. Dr. Coppinger saw the body of James Hand, and reported the cause of death as scurvy, also that George Bryant was in a precarious state. The sick now made rapid progress towards recovery under Dr. Coppinger's care, and with the great assistance of Hans, who worked very hard in procuring seal meat. On the 22nd of June, as Lieutenant Beaumont's party had not yet returned, I determined to go to meet him with the dog sledge. Both Lieutenant Fulford and Dr. Coppinger offered their services on this occasion, but considering that the expected party might require medical assistance, and that George Bryant was now out of danger, I decided on leaving Lieutenant Fulford in charge of the sick, and taking with me Dr. Coppinger, Hans, the dog sledge, with the 8 dogs and 16 days' provisions.

On the 22nd of June, therefore, we started, and on the 25th met the party in Newman Bay. The whole of them were affected with scurvy; Lieutenant Beaumont, Alex. Gray (Ice Q.M.), and Frank Jones (Stoker), were the only ones able to pull; William Paul (A.B.), William Jenkins (Carp. Mate), Peter Craig (A.B.), and Wilson Dobing having to be carried on the sledge. We turned back with the party and retraced our steps till the 28th, when Dr. Coppinger took Paul and Jenkins on the dog sledge, straight into the depôt at Polaris Bay, but unfortunately not in time to save the life of Paul, who died at 5.15 p.m., on the 29th of June, 17 hours after his arrival. On the 1st of July the whole party had arrived at the depôt. On the 12th of July, Lieutenant Fulford, with Frank Chatel, Michael Regan, and the dog sledge, proceeded across the channel to the ship. On the 19th of July your party arrived with medical comforts for the sick, and on the 29th I accompanied you back to the ship with the men named in the margin, where we arrived on the 3rd of August.

Thos. Simmonds. 1st Cl. P. O.
David Stewart, 1st Cl. P. O.
Samuel Bulley, Stoker.
Frank Jones, Stoker.
Wm. Waller, Private, R.M., L.I.
Wm. Jenkins, Carpenter's mate.
Hans, Dog-driver.

I cannot speak too highly of the way in which Dr. Coppinger assisted me in *every way*, and also of his great care and kindness to my sick men.

George Bryant, Michael Regan, and Elijah Rayner, of my crew, I also have to bring before your notice, who, although on short allowance of food, with a heavy sledge to drag, and knowing that we only had a very inaccurate chart to guide us, greatly assisted me by the cheerful and persevering way in which they bore all the privations and hard work.

In compliance with your orders I started at 7.30 a.m. on Sunday, August 7th, to walk to H.M.S. "Alert," then on the north side of Shift Rudder Bay, to inform Captain Nares that Lieut. Beaumont's party had not yet returned. I took with me Thomas. Simmonds (1st Cl. P.O.), and George Bunyan (1st Cl. P.O.). We arrived on board H.M.S. "Alert" at 6 p.m., on the same day. On the 9th of August, the "Alert" being detained by a serious nip, I received orders from Captain Nares to return to my own ship. We started at 11 a.m., at the head of St. Patrick Bay we came upon two

Musk oxen, one of which, an old cow, we managed to kill; but since our only weapons consisted of my hunting knife and an alpine stock, we could not get the second one, as he made off directly he was wounded. We arrived on board H.M.S. "Discovery" at 11 p.m.

The next day (August 10th) at 11 a.m., I proceeded by your orders to St. Patrick Bay, to keep a look out for, and render assistance to, Lieut. Beaumont's party, who were daily expected from Polaris Bay. I was accompanied by Mr. George Le C. Egerton, Sub-Lieut., belonging to H.M.S. "Alert," and having with me the men named in the margin.

D. Stewart, P.O. 1st Cl.
Jno. Saggers, A.B.
William Waller, Gunner, R.M., L.I.

On August 14th I received orders to return on board with my party, as Lieut. Beaumont had returned. I arrived on board at 10 p.m.

I have the honour to be,
Sir,
Your obedient Servant,
WYATT RAWSON, *Lieutenant, R.N.,*
H.M.S. "Discovery."

Captain H. F. Stephenson, R.N.

16th August, 1876.
H.M.S. "Discovery," at Discovery Harbour,

20th Journey. Thursday, May 11th, 1876.

1 a.m.—Lunched.

S. by E. 3 to 5, b. c. + 9°

2.50.—Beaumont and his party left. We gave them three cheers, which they returned. While my men were packing the sledge, I walked up the hill and collected some specimens of lichens, saxifrage, and a piece of dwarf willow. I saw the last of Beaumont and his party, tugging along with their heavy sledge.

3.45.—Started for Repulse Harbour. Hand not able to pull; so we put him between the drag ropes so that he might support himself and get his legs out of the deep snow. His legs are like pokers, and he says he feels sick in his stomach and is thirsty.

Travelled 3½m.
Made good, 3m.
Hours working, 3h. 5m.

6.50.—Encamped. Hand pretty done. He "went" his pemmican and tea, and now seems all serene. Bryant whose "spars" (as he calls his legs) have been giving him a good deal of trouble to-day, is now rubbing some liniment into them. As I don't intend Hand to be cook, he is to sleep next me.

21st Journey.

S. by E. 1 to 5 c.
Temp. +15°.

6.30 p.m.—Roused cook. Blowing hard nearly all night. Hand about the same; Bryant's legs very stiff.

9.50.—Started. Coming on very thick; good-bye sun.

Friday, May 12th.

S. by E. 2 to 6. o. s. +18°.

1.20 a.m.—Pitched for lunch.

3.10.—Started. Had very tough work over the hill before we came to the ice in Frankfield Bay; and it was so thick we could not see 100 yards.

Made good, 4½m.
Travelled, 5½m.
„ 7 hrs.,

6.40.—Encamped about three-quarters of a mile from east shore of Frankfield Bay, Hand seems more cheerful, but he can only just walk.

22nd Journey.

N.E. 1 to 3, b. c. +22°.

6.45 p.m.—Roused cook. We have had a very uncomfortable night—or rather, day—owing to the heat. If any one had told me during the cold weather that I should be kept awake, out sledging, from its being too warm, I should have told him he did not strictly adhere to that sacred article called truth. But such was the case last night; and about half-an-hour after we lay down the sun came out, and raised the temperature of the tent to +60°. So we had to open the door, take our coverlet off, and get out of our bags; and even then it was several hours before we were cool enough to sleep. A thermometer placed against the canvas at the top of the tent, on the inside, showed +95°.

10.40.—Started. Hand not so well, but able to walk with the aid of my Alpine stock; he complains of feeling very sick. Bryant's legs a little better.

Saturday, May 13th.

12.40 a.m.—Reached the S.W. spit of Frankfield Bay. Sextant angles taken from spit :—

Extreme Point	zero
Point Rest	6° 28′
Mount Wyatt	19 28
,, Punch	45 2
High Cliff, Frankfield Bay	95 36
Mount Lowe	130 34
Mount Lowe	zero
Arthur's Seat	75° 56′
Highest Cliff	78 15
Cape Union (peak)	83 27
Black Cape	88 54

I.E. +8′.

Compass bearings from spit :—

Extreme Point	156°
Point Rest (camp)	163
Hard Work Slope	166
Mount Wyatt	175
Mount Stanton	286

1.40.—Pitched for lunch. Hand very done : spread sail, and gave him a knapsack for a pillow, and he slept a little while we were waiting for the tea. It cleared while we were at lunch, so (as I knew that the next two miles was good travelling, and as Bryant's legs were better) I determined to go up Mount Lowe.

2.50.—Started. 5.30.—Reached the top, and got a very good round of angles, and also a sketch of the coast of Grant Land.

Sextant angles taken from the top of Mount Lowe (800 to 1,000 ft.) :—

Left extreme, "Cape Britannia Land"	zero
Mount Albert	0° 18
High Peak, "Cape Britannia Land"	1 45
Mount Hart	16 41
Mount May	17 7
Mount Hooker	17 53
Mount Wyatt	22 32
Mount Wyatt	zero
Mount Windham Hornby	12 52
Mount Goodenough	14 0
Mount Punch	28 20
Mount Egerton	64 4
Degree Hill	88 48
Black Hill	123 49
Degree Hill	zero
Rock Hill Peak	40 54
Hall Mountain	57 14
Mount Stanton	88 28
Cape Stanton	95 34
Regan Bay	93 6
Frederick VII. Cape	98 54
Lincoln Bay	101 43
Arthur's Seat	108 22
Highest Cliff	110 22
Ravine	111 50
Paps	112 28
Ravine	113 50
Union Cape	114 55
Black Cape	121 14
Cape Rawson	125 40
Black Cape	zero
Extreme of Grant Land	21 5

I.E. + 8′.

From the top of Mount Lowe I discovered a high peak, about 5 miles inland, and I should think from 1,500 to 2,000 ft. high, which I called after Egerton. Mount Lowe is very like Mount Stanton, only higher. A ptarmigan track was the only sign of life I saw. I brought down a specimen of stone, and also a lichen. There was no sign of saxifrage, or grass, on top.

Made good 4½m.
Travelled 5m.
S. by E. 3 b. c. z.
+9°

6.0.—Started down again, and at 7.40 reached the East Cape of Hand Bay, where I found the sledge, and where I encamped.

It is another warm, clear day, but we are prepared for it by having no coverlet and no duffles on. We had "bread-dust pemmican" to-night, which Hand seems to be able to eat better than the ordinary stuff, as he says it does not taste so greasy. There are several black and blue marks on his legs, and a red rash around the calves. He cannot eat any biscuit unless it is soaked in tea or chocolate, as his gums and teeth are very sore. He suffered a good deal to-day in the legs, and a cough he has troubles him a good deal, and makes his breathing very short. He tries to be as cheerful as he can, and never complains, and my men do all in their power to cheer him. I am glad Beaumont has this clear day for his discoveries.

23*rd Journey.*

7.30 p.m.—Called cook. Hand had a better night, but was very bad whilst putting on his gear this morning; any exertion makes him perspire and blow. Bryant is stiffer than ever, but says, "it always works off."

Calm o. m.

10.20 p.m.—Started across floe; snow not bearing, and most of it either "Hand over hand with her," or "One, two, three, haul;" but even with this we have to wait every now and then for Hand to come up, as he can't go more than 30 yards in this soft snow without laying down for breath. It is a cloudy day with no sun.

Sunday, May 14*th.*

Calm o. s.
+11°.

1.55 a.m.—Pitched for lunch on the floe in Hand Bay. We have not made more than three-quarters of a mile this march, as Bryant is so stiff he can hardly pull.

4.15.—Started. Trying to keep in our old tracks, but it is very hard to see them. Hand always seems better after his mid-day rest, so I let them have time for half a pipe before starting.

+15°.
Made good 4m.
Travelled 5m.
„ 7h. 0m.

7.40.—Encamped close to Cape Stanton; Hand more cheerful; rubbed Bryant's legs with liniment.

24*th Journey.*

N.E. 2. o.
+8°.

8.10 p.m.—Called cook.

11.0.—Started along the slopes. Dull day. Hand a little better about the legs, but very sick, giddy, and short of wind. Our old road is filled up, so the slopes are as bad as ever, and it is a succession of "One two, three, haul." In some places the snow is turning a brownish colour.

Monday, May 15*th.*

N.E. 2 o. s.
+10°.

1.45 a.m.—Arrived at Stanton Gorge Depôt. Pitched for lunch, and also to arrange depôt. Hand very "done," giddy, sick, and has got the shivers; have wrapped him up in the coverlet. Bryant's legs like pokers, and he is very little use along these slopes, but he tries his "level best." Took forty rations from the depôt, and left a record and letter for Beaumont. Saw a snow bunting. I have determined on taking to the floe, as my sledge cannot stand these snow slopes; I am sorry to say we have no pickaxe, as we gave ours to Emmerson, who had lost his, so now we shall have to use our pemmican chopper to make a road with. Bryant's left knee is much swollen and blue.

N.E. 3. o. c. s.
+10°.
Made good 1½m.
Travelled 2¼m.
„ 6h. 50m.

5.30, started and took to the floe (or rather the hummocks), and by dint of much hauling, tumbling, and the use of the pemmican chopper (which we could not have done without), we got over about three-quarters of a mile of rubble and encamped on a floe at 9.35 a.m. As Hand cannot drink the cocoa in the morning, we are going to try tea for breakfast and cocoa for supper.

25*th Journey.*

N E¼ 2. c.
+6°.

8 p.m.—Called cook.

11.0.—Started. Hand about the same. Bryant's legs stiffer; he has to fall out now when we go through heavy snow. We have to have any amount of "Spell oh's," to

allow Bryant to rest his legs and Hand to come up. Hand is not so sickly this morning, and having the tea for breakfast seems to have done him good.

Tuesday, May 16th.

2.30 a.m.—Pitched for lunch.

4.45.—Started. Had very good travelling over the floes, but we had to keep stopping to allow Hand to come up, as he gets on very slowly. N.E. 1. o. c. +10°.

9.15.—Encamped. Hand has a bad headache this morning. I thought my legs were going to weather this spring without a bandage, but I have had to put one on my right calf to-day. N.E. 1. o. m. +10.° Made good 6m. Travelled 7m. „ 8 h.

26th Journey.

8 p.m.—Called cook. Cloudy day.

11.30.—Started. Hand much worse, I think, this morning; his legs one mass of black and blue marks and spots; he is also very giddy, and we have to go along very slowly for him to keep up with us. It will soon be a case of carrying, I am afraid; but that I want to put off as long as possible, as Bryant's knee is no better, and so there are only three of us who can pull. Hand seems to suffer a good deal of pain, and seems to have a strong craving for "lime juice." I only wish we had a ton of it for him. S.W. 1 to 2. o. m. +15°.

Wednesday, May 17th.

3.10 a.m.—Pitched for lunch. The sun has just returned "off leave." The snow is disappearing off the south faces of the hills. S.W. 1 b. c. + 9°.

4.30.—Started. We have been working in for the shore hummocks. Snow very soft and heavy on account of the sun being out.

9.0.—Encamped. I went ashore and up a hill to pick a road for to-morrow through the hummocks. Hand has a very sharp pain through his chest when he walks. I could make out the cairn at Repulse Harbour from the floe to-day. Our wick has lasted for nine days this time in the stearine lamp, while they generally only last from three to six days. Rayner's left eye has been giving him a good deal of trouble to-day. Made good, 2½m. Travelled 4½m., „ 7h. 10m. Calm b. c. Shade +16°. Sun +37°.

27th Journey.

8.30 p.m.—Called cook. Beautiful night; sun shining bright.

11.35.—Started through very heavy snow. Hand suffers a great deal every morning at first starting, and has to lay down for breath every two or three yards. Bryant's legs are also worse, and he cannot help us at all through this snow. We find since we have taken tea instead of cocoa for breakfast that we do not feel the first half of the march so severe as we used to feel it. Calm b. c. Shade +15°. Sun +40°.

Thursday, May 18th.

Made Rayner wear a green shade over his left eye. All the men have put on canvas boots to-day.

4.15 a.m.—Lunch. We took to the land for about 300 yards to clear some rubble, but have now got down on to a small floe again. Hand and Bryant both detain us rather now, so we make but poor progress. The snow is very soft now. I hope Beaumont and his party will be all well when they are coming back, as I expect they will have some very tough work along here. I took the bandage off Bryant's knee, as it only makes it swell more. The bandage on my knee has perfectly cured me. We all *do* look a dirty, unwashed, and unshaven crowd; but weare all in as good spirits as can be expected.

6.15.—Started. Got round Snow Point, on the floe, and then hauled the sledge up over the land hummocks on to the snow-foot. Travelling good till we came to the Sastrugi, which was pretty tough work.

10.10.—Encamped. Hand came up afterwards; he was very tired, but managed to eat his pemmican, although it is becoming a great struggle every day for him to get it down. We could never have got through the rubble to-day, without unloading, if we had not had our pemmican-chopper, and now, sad to say, one of the men broke it in getting ice for cooking. S.W. 1. b. Shade +20°. Sun +48°. Made good, 4 m. Travelled 4½m., „ 8h. 35m.

28th Journey.

10 p.m.—Called cook. We have had a wretched day, owing to the heat. We all took off our duffles, got out of our bags, and opened the door of the tent; but even then some of the men had to take their jerseys off. My thermometer went up to +95° when placed against the sunny side of the tent. It was quite calm till about 4 p.m., when a squall suddenly came on from the S.W., and blew for about a quarter of an hour with a force of from 3 to 4. While this lasted the temperature went down to +42°, but rose to +56° when the squall was over. A snow-bunting and some ptarmigan flew round the tent this morning.

Friday, May 19th.

Calm b. c.
Shade +18°.

12.30 a.m., started. Hand very giddy, but his legs not so stiff.

Bryant about the same. Rayner's eye much better.

5.15 a.m. lunch. We have had to carry Hand for the last mile on the sledge, as his breath is so short this morning, and he gets giddy so soon, that he can't go more than a few feet without laying down for five or ten minutes. He "stuck out" very pluckily against being carried, knowing that as Bryant can hardly pull, it would increase our load considerably; but we should not make a mile a day if we waited for him.

Calm o. s.
Made good 5½m.
Travelled 6m.,
" 9h. 30m.

7.30, started. Carrying Hand.

Had to go through some heavy snow.

12.15 p.m.—Arrived at the depôt in Repulse Harbour. Visited Cairn and found records; also some gold leaf tobacco, and a letter for me from Egerton, both very acceptable, more especially the former. From the records I see that May reports good travelling to Newman Bay; so, as Dr. Coppinger has gone on to Polaris Bay, and as it is too thick to see if there are any cracks in Robeson Channel, I intend following him down to "Thank God Harbour."

I am glad to see they have left my pickaxe at the depôt, also a 5-man sledge-runner, a thing we are greatly in want of, as one of our runners has been very shaky lately, especially since we have had to carry Hand, who is a big man.

29th Journey, Saturday, May 20th.

4 a.m.—Called cook. Took 20 rations from depôt (without rum), also one pickaxe, our boatswain's bag, 1 five-man sledge runner, 4 rocket staffs, and a saw.

Re-secured depôt with stones.

Left a record and a letter for Beaumont in the cairn.

South 1. o. s.
Calm o. s.

9.15. a.m.—Started. A very thick cloudy day and snowing.

11.40.—Pitched for lunch. Hand tried to walk this morning, but he is too giddy and too short-winded.

Rayner's eyes are very sore; mine are also commencing to trouble me. This dull, thick weather is very trying for one's sight.

2.15 p.m.—Started. Had to carry Hand on the sledge.

Calm o. s.
+25°.
Made good 4m.
Travelled 4½m.,
" 8h. 10m.

8.0.—Reached the Gap Valley. Rayner's and my eyes both bad, so we have had each a drop of "wine of opium" in them, or, as the men call it, "a drop of open-eye." Only those who have undergone this operation can fully appreciate it. We do look a miserable set; I only wish "Mark Tapley" was here.

30th Journey. Sunday, May 21st.

7.0 a.m.—Called cook. My eyes better.

11.0.—Started. Travelling up the valley pretty good, but here and there patches of very heavy snow.

2.15 p.m.—Pitched for lunch. Shifted our sledge runner which had "carried away" for the one we brought from the depôt. I have stuck the old runner upright in the snow, and left a letter for Beaumont. Bryant's legs very swollen, and several blue marks about them.

Made good 3½m.
Travelled 4m.
" 7h. 40m.

5.15 p.m.—Started.

9.40 p.m.—Encamped. Can't see to write more.

31st Journey. Monday, May 22nd.

9.0 a.m.—Called cook. My eyes a little better in tent. I had another drop of "open-eye" last night, but I can't see outside the tent. Bryant's legs are, if anything, worse, and I am pretty certain now that he also has scurvy.

12.45 p.m.—Started, carrying Hand. Our travelling during this march has been over very rough sastrugi, and as I have to be blindfolded on account of my eyes, I have been tumbling about in the most absurd manner. North 1 o s. +25°.

5.30.—Pitched for lunch. This sastrugi has been very rough work for Hand on the sledge, and he seems rather "down on his luck," and seems not to care what becomes of him.

7.40.—Started.

Tuesday, May 23rd.

12·45 a.m.—Encamped. The men have been following Coppinger's old tracks, as I can't see. I should think we have travelled about 2¾ miles, most of it standing pulls. Hand about the same; his face is very swollen; he thinks he has strained himself a little. North 1 to 3 o. s. +16°. Made good 2m. Travelled 2¾m. „ 9h. 50m.

32nd Journey.

10.0 a.m.—Called the cook. N.E. 3 o. s. +18°.

12.30 p.m.—Started; made sail. Hand about the same. Bryant not able to pull. My eyes better. North 3 to 7 o. s. z.

4.15.—Pitched for lunch. About 2 p.m. we got out of the ravine on to a small plain. I have great work now to try and make Hand eat half his pemmican, and he will not touch his cocoa. Our sail helped us a great deal this march. Snowing very hard. +20°.

6.45.—Started. Under sail down the next ravine.

Wednesday, May 24th.

12.10 a.m.—Encamped. We are clear of the ravine, and only a quarter of a mile from Newman Bay. We had very hard work the last mile of the ravine, owing to the snow drifts, over which we had to lower our sledge. Some of these had a sheer drop of from 12 to 14 feet. Made good 4m. Travelled 6m. „ 9h. 10m.

33rd Journey.

11.45 a.m.—Called cook. Blowing hard all night from the north with a great deal of drift. North 2 to 5 o. z.

4.30 p.m.—Started under sail, carrying Hand; Bryant walking behind. Got on to the ice of Newman Bay; saw Dr. Coppinger's tracks going to the west round Cape Brevoort. Left a staff and note for Beaumont. It has turned out a fine day, but my eyes are still too bad for me to take any angles. The wind falling light, but the travelling is by far the best we have ever had, as the snow on the top of the ice is perfectly hard, and I don't now wonder at former expeditions travelling 20 or 30 miles a day, if they had any ice like this and a healthy crew. North 1 to 3 b. c.

9.0.—Pitched for lunch. Saw the sun to-day, which is a very unusual event. Bryant's legs much worse. West 1 b. c. Calm b. +10°.

11.30.—Started.

Thursday, May 25th.

3.30 a.m.—Encamped. Travelling not so good towards the end of the bay. Hand's teeth are getting very loose; two of them came out to-day. Made good 10m. Travelled 10½m. „ 9h. 30m.

34th Journey.

3.15 p.m.—Called cook.

6.20.—Started. A beautiful day with a light north-westerly breeze. Made sail. Saw a snow bunting. N.W. 2 to 3 b. c. +25°.

9.35.—Pitched for lunch on the land on the south side of Newman Bay. Bryant has hardly been able to keep up with us to-day.

11.50.—Started.

Friday, May 26th.

4.15 a.m.—Pitched on the top of a hill, between 400 and 500 feet high. It has taken us all this morning to get up this, standing pulls the whole way. I tried to go round this hill by a ravine; but there was no snow in it, so we had to go straight over it. There are thousands of shells on the land here: two or three specimens I got from a height of about 300 feet above the level of the sea. Calm o. s. +19°. Made good 4½m. Travelled 5½m. „ 7h. 40m.

35th Journey.

N.E. 1 o. s.

5.15 p.m.—Called cook. It is snowing hard and melting on top of the tent as it falls, which will add a few more pounds to our weight.

8.15.—Started, carrying Hand, Bryant walking. I am glad to say both Rayner's and my eyes are all serene again.

N.W. 3 to 4 o. s. ×19°.

11.0.—Pitched for lunch. Travelling this march has been very heavy, owing to the deep snow.

Saturday, May 27th.

Calm o. s. +29°.

1.30 a.m.—Started. Made sail, but the wind soon fell, and we had to lower it.

5.20.—Pitched. Snowing hard, and as thick as "pea soup."

Made good 3m.
Travelled 4½m.
„ 6h. 35m.

36th Journey.

5.15 p.m.—Called cook. Snowing hard, and so thick that you can't see above a hundred yards.

S.W. 1 o. s. +27°.

8.15.—Started. Hand on the sledge, and Bryant just able to "hobble" along with the aid of an Alpine stock. Travelling all through heavy snow.

11.0.—Pitched. I have decided on depôting all the gear I can here, as this heavy snow makes the work very hard, and I am afraid Regan or Rayner may get laid up. Depôt consists of—

5 knapsacks	60 lbs.
1 lower robe (wet)	30 „
Beaumont's spare cooking stove	25 „
Sextant	12 „
Boatswain's bag	30 „
A bag of gear belonging to Hand, which was picked up from the depôt at Repulse Harbour	20 „
Spare tent pole	5 „
Total	182 lbs.

Depôt is marked by tent pole with a blue comforter as a flag and 46° (compass) from the Eastern Bluff, which is the only thing I could see. We are keeping a change of foot gear in our bags.

Sunday, May 28th.

Made good 3m.
Travelled 4m.
„ 6h. 45m.

1.30 a.m.—Started, having left a record with the depôt. The travelling very heavy, owing to the soft snow. Our course is about W.S.W. (true).

5.0.—Encamped. Gave Hand a chalk powder. Bryant's legs are worse. All our gear is wet through.

37th Journey.

Calm b. c.

5.30 p.m.—Called cook.

8.30—Started. Bryant is rapidly getting worse, and I am afraid we shall be carrying him as well as Hand.

Monday, May 29th.

E.N.E. 2 to 3 b. c. +20°.

12.30 a.m.—Pitched for lunch. Bryant has a pain in the left side.

E.N.E. 3 to 5 b.c.z.
Made good 3m.
Travelled 3¼m.
„ 8h.10m.

3.0 a.m.—Started. Deep snow. Had to bandage Rayner's leg, which he hurt some time ago, and which is getting bad again. We have two more days' provisions left; that is counting to-day.

7.10 a.m.—Encamped.

38th Journey.

E.N.E. 5, b. c. z. +17°.
E.N.E. 3, b. c.

7.30 p.m.—Called cook. Blew heavy all night; men suffered from cramp. We felt the want of our coverlet which we depôted the other day. A 5-man tent for five good-sized men, two of whom are bad with scurvy, is rather close stowage.

11.30.—Started under sail.

Tuesday, May 30th.

E.N.E. 2.
+17°.
Made good 2¼m.
Travelled 3½,
„ 8¼h.

3.0 a.m.—Lunch.
4.50.—Started.
9.35.—Encamped. Snow very soft, and nearly all one, two, three, haul's. Rayner's ɜg very stiff.

39th Journey.

10.20 p.m.—Called cook. Hand is very weak, and can't move without help. For he last three or four days we none of us have been able to eat our full allowance of ɔod, which is very fortunate, for we are only provisioned up to to-day, but now we can un on at least two days more. Temperature in tent last night was +15°, which without a coverlet is not pleasant.

Wednesday, May 31st.

2.10 a.m.—Started under sail.
6.20.—Pitched for lunch. Bryant a long way astern. We are very lucky to have his fair wind, as it helps us greatly through the heavy snow. N.E. 2 to 4, b. c. z.
8.40.—Started.
12.40 p.m.—Encamped in a small ravine, which seems to lead from the plain down o Polaris Bay. Hand seems getting rapidly worse, and his breathing is very heavy ıow, so much so that I thought he was going to choke to-day. Rayner is blind in the eft eye again. N.N.E. 3, b. c. Made good 2m. Travelled 3m., „ 8h. 10m.

40th Journey. Thursday, June 1st.

12.20 a.m.—Called cook.
3.5.—Started. Hand got a little delirious when we helped him on to the sledge. Bryant very sick at starting. Travelled under sail down the ravine, the snow being ıard and soft alternately. N.E. 2 to 4, o. s. z. Air +17°. Tent +18°.
6.55.—Pitched for lunch on the ice-foot in Polaris Bay. We found a small cairn at he mouth of the ravine, with a staff on the top of it, with a large F cut into the staff, ɔut I could not find any record. This must be one of the Polaris' cairns. We have inished our potatoes and rum, but, thanks to our appetites failing, we have still enough ɔemmican, biscuit, tea, and chocolate to last another day. The men are all very "done," ɔut I trust we shall be in Thank God Harbour before long.
10.20.—Started along the ice-foot towards Cape Lupton. N.E. 2 to 3, o. s.
2.20 p.m.—Encamped. We have had very heavy snow to get through this march, ınd the whole weight of the sledge has been resting on the battens and sledge bottom, naking it very heavy work. It is snowing so hard, and the weather is so thick, that we cannot see more than two or three hundred yards, to add to which I am snow-blind entirely with my right eye, and partially with my left. Saw nine snow-buntings to-day, going east. As our provisions will be finished to-morrow at breakfast, and there is no sign of the depôt, although we are now exactly at the place where the chart marks it, I ıntend going on with Rayner and Regan to-morrow to try and find the depôt and ɔring back some more provisions. Made good 3m. Travelled 4m., „ 7h. 50m.

41st Journey. Friday, June 2nd.

3 a.m.—Called cook. I am glad to say it is a clear day, but it is blowing from the N.E. N.E. 3 to 5 b. c. z.
6.0.—Started with Rayner and Regan and a light sledge, to bring back the provisions; but after we had gone about 400 yards I saw we could not get even the light sledge through the heavy snow, so we left the sledge and got on top of the raised beach, where we were able to walk along better.
8 a.m.—Sighted Captain Hall's grave, and at 8.30 reached the observatory at "Thank God Harbour." The position of the observatory on the chart is 3 miles from the nearest cliff, whereas it is not a mile from a cliff. I found records in the house. Lieutenant Fulford and Dr. Coppinger were up Petermann Fiord with the dog sledge, but would be back in three or four days; I sincerely wish Coppinger was here to see my two sick men. Took from depôt— N.E. 4 b c. z. +37°.

4 lbs. pemmican.
4 lbs. preserved meat and vegetables.
4 lbs. biscuits.
1 ham.
About ½ lb. of limejuice (frozen).

Travelled 6m.,
" 6h. 30m.

11.30 a.m.—Started back to camp. My eyes have struck work altogether now, and coming back to the camp I had to walk between the two men.

3.30 p.m.—Arrived in camp. Rayner's leg, on which he fell the other day, is now black and blue from the knee to the ankle. The day's rest seems to have done Hand a little good, but has had the opposite effect on Bryant. We gave them some preserved meat and limejuice. I brought back 2 gills of rum from the depôt. I shall be very glad when I can turn my two invalids over to Dr. Coppinger.

42nd Journey. Saturday, June 3rd.

N.E. 2 to 4 c. z.
+33°.

5.20 a.m.—Called cook.

9.10.—Started, Bryant coming along slowly behind, but he can only go about 30 yards without laying down for breath; I have given him the rifle, and if he is very far behind we shall have to come back for him with an empty sledge.

N.E. 2 to 4 b. c. z.
+26°.

12.40.—Pitched for lunch. We have had a head wind all this morning, making it rather unpleasant; but the wind lately has done us so much good that we can't growl at a little against us.

1.50 p.m.—Bryant came up.

2.20 p.m.—Started.

Made good 1½m.
Travelled 2m.,
" 5h. 10m.

4.0—Reached "Thank God Harbour." Pitched our tent close to the observatory. Read prayers. Hand was very bad when we helped him into the tent; his breathing came in such short gasps, and he clenched his teeth so tightly, that I thought he was going off. His mind wanders every now and then.

7 p.m.
N. 3 to 5 b. c. z.
Outside +29°.
Tent +33°.

8.30 p.m.—Hand seems much worse. He gets hot and cold fits by turns, and when he has his hot fits he seems as if he could hardly breathe. I don't know whether scurvy affects the lungs, but I should think his were gone altogether. We gave him a pannikin of preserved meat and vegetables this evening, but although I ordered him to eat it, he could only get the soup of it down. We have covered him over with the sail and are laying as close to him as we can to keep him warm; but when he gets a hot fit he tries to throw off everything. We have no grog to-night, and shall have none now till Beaumont comes back. The men are all asleep.

Tent +39°.

10.30 p.m.—Hand has been very bad for the last hour, but seems a little better now. His mind wanders greatly. In his hot fits he breathes 40 times in a minute.

11.0 p.m.—Hand is dead. He had a hot fit about five minutes after I made my last entry, and his breathing stopped so long that I roused the men, and I was able to get a little brandy and about 20 drops of sal-volatile between his teeth, which seemed to revive him a little, but he lost his breath again and died at about a quarter to eleven.

Sunday, June 4th.

We placed the body of poor Hand in the house this morning. I do not intend burying him till after Dr. Coppinger has returned, as I wish to know whether it is entirely owing to scurvy, as I have never heard of any man dying in so short a time from this cause.

10.0 a.m.—Breakfast. Read the Morning Service.

4.0 p.m.—Lunch. There is no sugar in this depôt, but as there is a cask of molasses, we use that to sweeten our tea and lime juice.

I hope the preserved meat and vegetables, lime juice, and a good rest, will pull Bryant through, but he certainly seems much worse to-day, and I think he has got a little nervous about himself. We have found an old mattress belonging to the Polaris, and this we have put in our tent for Bryant.

Calm b. c.
+19°.

11.0 p.m.—Supper.

Monday, June 5th.

North 3 to 7 b. z.
+26°.

8.0 a.m.—Called cook. I have picked out a place for Hand's grave, close to the grave of Captain Hall; but we have to get down through 2 feet of snow first, so I don't know yet whether the ground is soft enough in that place to get down. It is blowing hard from the north with a great deal of drift.

North 6 b. c. z.

3.0 p.m.—Lunch. We have had to pick another place for the grave, as we found it was frozen clay at the first place I chose, and so tough that the pick would hardly make a mark in it; but the place we are digging now is much softer. I went out with my gun and was lucky enough to get a brace of ptarmigan for Bryant. The cock bird was in winter plumage, but the hen was in summer plumage.

North 2 to 3 b. z.

8.30 p.m.—Supper. We have been able to dry our bags and night gear to-day, which is a great comfort, as a wet bag is anything but a warm thing in this weather.

Tuesday, June 6th.

10.0 a.m.—Called cook. Blowing hard from the north all night, and had to turn it twice in the night to re-secure the tent. Bryant's legs are a little better, but he ems very weak indeed. North 5 to 9 b. c. z.

4.0 p.m.—Lunch. The wind falling light; so we were able to continue Hand's rave. Could see nothing to shoot to-day. Bryant seemed to enjoy the ptarmigan ery much, although his gums are so sore he could hardly bite it. North 5 b. c. z.

9.30 p.m.—Supper. Calm b. c. +26°

Wednesday, June 7th.

6.0 a.m.—Fulford, Coppinger, Chatel, Hans, and the dogs turned up from etermann Fiord. I am sincerely glad we have now got a doctor for Bryant. They ere very surprised to see us here and to hear our sad news.

7.0.—Breakfast. Dr. Coppinger examined the body of Hand, and he said it as a clear case of scurvy. He also says Bryant is in a critical state, and Regan also is a slight touch of scurvy. Fulford has brought back several dovekies and a Neitsuk eal, which they shot in Petermann Fiord, so that we shall have fresh meat for the sick en. They also killed a large Usuk seal, which they depôted at Cape Buddington. hatel, the captain of Fulford's sledge, has also a slight touch of scurvy.

2 p.m.—Supper. It is coming on to blow again from the north. North 5 b. c. +33°.

Thursday, June 8th.

7 a.m.—Called cook. North 8 b. c. z. +37°.

9.—Buried Hand. Dr. Coppinger read the service, as Hand was a Roman Catholic. Ve have placed stones all round the grave, and Dr. Coppinger has planted some dwarf illow and saxifrage over it; he is also going to cut an inscription on a mahogany table, hich is the best thing we can find here for a headstone. Saw six Brent geese, one of hich Fulford shot. There has been a rapid thaw going on to-day, and all along the e-foot there are pools of water. Bryant is very weak, and as the doctor wishes to be ear him he is going to sleep in my tent and I am going to sleep in Fulford's.

5 p.m.—Supper. Bryant, Regan, and Chatel are living off the seal meat. ulford has given us a week's allowance of rum out of his stock. All the preserved otatoes which he has are to be kept for the men with scurvy. North 5 b. c. +40°.

Friday, June 9th.

3 a.m.—Called cooks. Calm b. c.

6.15.—Started with Hans and the eight dogs for Cape Buddington to bring back e seal which was depôted there. On our way there Hans shot another usuk.

10.45.—Arrived at Cape Buddington, and found the seal not touched; he is a very rge one. We had splendid travelling the whole way, and the dogs rattled us along at great pace.

11.15.—Started back.

7.15 p.m.—Reached the camp. We saw six other seals on the ice, but could not et near enough for a shot. We crossed several cracks of from 6 inches to 2 feet in idth, and there was a good deal of water on top of the ice in several places. Saw seven rent geese. Fulford shot a skua. One of the dogs had two fits to-day. North 6 b. c. +39°. Travelled 24m., " 12¼h.

Saturday, June 10th.

6 a.m.—Called cook. Blowing hard from the north. N. 5 to 7 b. c. m. +30°.

1 p.m.—Lunch.

6 p.m.—Supper. Still blowing. We all had seal meat for supper, and enjoyed it mensely. North 7 b. c. z. +31°.

Sunday, June 11th.

6 a.m.—Called cook. Read the morning service. Bryant seems getting more eerful and stronger. Saw a flock of 21 Brent geese, one of which the doctor shot. North 6 b. c. +33°.

1 p.m.—Lunch. Sent Hans with dogs to bring in the seal we depôted. Walked ith Coppinger to the Black Ridge, and put up a staff and record for Beaumont. aught a lemming in his summer costume. Coppinger shot a goose. North 3. +37°

7 p.m.—Supper. Hans returned with the seal; he saw three others, but his gun issed fire.

Monday, June 12th.

North 1 o. s. +33½°.

6 a.m.—Called cook. The wind has fallen, but it is snowing hard.

9.15—Started with Hans and the dogs to bring in the gear which I depôted on the plain. We travelled over the floe, till we came to the mouth of the ravine which leads up to the plain; this ravine we travelled up and reached the plain at 2.15 p.m., when we stopped for lunch.

S.W. 1 b. c. +39°.

2.45 p.m.—Started again. Snow very heavy on the plain for the dogs.

5.0.—Arrived at depôt.

6.35.—Started back, bringing back all the gear. Left a tent pole with a blue comforter on it as a flag, and a record for Beaumont.

Tuesday, June 13th.

North 2 b. c. +33°.

2.20 a.m.—Arrived in camp. The dogs very done, but they have worked splendidly. Travelled 27 miles. Travelled 15 hours. Away from camp 17 hours 5 minutes.

7 a.m.—Called cooks. Fine day. Hans rather done after his trip.

Calm b. c. +34°.

2 p.m.—Lunch. Saw several geese, but they are too wary. Coppinger caught a lemming. Snow melting very fast.

8.0 p.m.—Supper. We got enough water to-day from the melting of the snow to have a wash; a luxury we have not had since the 21st of April.

Wednesday, June 14th.

Calm b. c. +31°. North 3 b. c. +40°.

6.30.—Called cooks. Hans quite well again. Bryant improving.

2.0 p.m.—Lunch. Hans went away with the dogs and shot two Neitsuk seal. We saw three ducks, the first we have seen this year. Shot two Brent geese.

Thursday, June 15th.

6.30 a.m.—Called cooks.

North 2 b. c. North 3 to 4 b.c. +36°.

1.30 p.m.—Lunch. Walked up to the cairn (which is a little over 800 feet above the sea level) to see if we could see anything of Beaumont's party. Saw four geese and one ptarmigan.

7.30.—Supper. We had the hearts and livers of the two Neitsuk seal for supper, and they were delicious.

Friday, June 16th.

Calm b. c. +31°.

6.0 a.m.—Called cooks. Another beautiful day. Got a meridian altitude.

Altitude		62°	57′	40″
Index Error		+	5	45
	2)	63	3	25
		31	31	42
Semi-diameter		+	16	0
		31	47	42
Refraction		−	1	30
		31	46	12
Zenith distance		58	13	48
Declination		23	23	30
Latitude		81°	37′	18″ N.

S.E. 1 b. c +36°.

1.30.—Lunch. Saw two eider duck.

7.30.—Supper.

Saturday, June 17th.

S.W. 1 b. c. +41°. North 1 b. c. +43°

6.0 a.m.—Called cooks. Beautiful day. Saw a flock of duck.

1.30 p.m.—Lunch. There is a good deal of water now coming down the ravines. I expect to see Beaumont now at any hour.

7.0.—Supper.

Sunday, June 18th.

Had service this morning. About 10 a.m. it came on to blow from the north. Calm b. c.

I hope Beaumont will soon turn up, but I don't feel anxious about him, as I know he has a full allowance of provisions up to the 28th, even if he does not find Fulford's depôt on the south side of Newman Bay.

Saw four gulls and four eider duck.

2.0 p.m.—Lunch.

7.30 p.m.—Supper. The rum which Fulford gave us is fast drawing to a close, but we have made it last by only giving half allowance. The saxifrage is beginning to bloom. North 6 b. c. +31°.

Monday, 19th June.

6.30 a.m.—Called cooks. We had drizzle to-day for the first time. N.E. 3 b. c. d. +35°.

1.30 p.m.—Lunch. Hans shot an eider. Calm o. c.

7.30.—Supper. No rum to-night.

Tuesday, 20th June.

7.0 a.m.—Called cooks. Sent Hans away with dog-sledge to try and get another seal. If Beaumont and his party don't turn up by the 22nd, I intend starting in search of him with the dogs. I walked with Fulford about 5 miles out on to the plain, but could see no sign of Beaumont's party. Shot a goose, but in going after it I lost my pocket-book and prismatic compass. Hans brought back a "Neitsuk" seal. Coppinger shot an eider duck. Bryant is now out of danger, although still very weak. As we have no boots over here but canvas ones, we cannot go a hundred yards from camp without getting wet through; so our general "rig" now is canvas boots, drawers, and canvas over-alls. S.W. 1 b. c. +40°. East 1 b. c. +40°.

Wednesday, 21st June.

7.0 a.m.—Called cooks. Am getting ready to start for Newman Bay to-morrow, with Hans, the dog-sledge, and 16 days' provisions. Fulford and Coppinger have both volunteered their services, but as I am afraid it is sickness which has detained the party, I intend taking Dr. Coppinger and leaving Fulford in charge of the men here. We are going to take the American two-man tent, which I am afraid will be rather close quarters for three of us. Coppinger shot a goose. Bryant and the other men still improving in health. We have been squeezing the oil out of the seal blubber, so as to be able to use the stearine lamp as well as the American stove. S.W. 5 o. +38°. S.W. 3 to 5 b. c. +34°.

Thursday, June 22nd.

We are to start to night, and I shall be very glad to be at work again, as I shall be very anxious now till I come across Beaumont. Fulford is going to hoist a flag on Cairn Hill to recall us, in case he should hear from the "Discovery," or Beaumont should turn up over the hills. S.W. 4 to 5 b. c. +31°.

My weights and gear are as follows:—

	Pemmican	225 lbs.	Tent, &c. ..	20 lbs.
	Biscuit	42 ,,	Sledge ..	50 ,,
	Stearine	20 ,,	Waterproof sheet	9 ,,
	Molasses	16 ,,	Lower robe ..	15 ,,
	Tea ..	$3\frac{1}{4}$,,	Trough ..	5 ,,
For Beaumont's party.	Limejuice	10 ,,	3 sleeping-bags	25 ,,
	Rum	1 ,,	3 sleeping gear	30 ,,
	Tins	15 ,,	Stove ..	20 ,,
	Bags	4 ,,	Rifle and gun, &c.	15 ,,
			Sundries ..	50 ,,
		$336\frac{1}{4}$ lbs.		
		239 ,,		239 lbs.
		8)$575\frac{1}{4}$ lbs.		
	Per dog	72 lbs.		

Fulford has lent me his leather boots, so that now I shall be as well off as Coppinger, who has also a pair.

S.W. 1 to 2 b. c.
+35°.

9.45 p.m.—Started. Took to the floe as far as the mouth of the ravine, where we turned up, and reached the plain soon after midnight. Although the snow is soft, and there is a great deal of bare ground, yet the travelling is on the whole better than I expected, and Hans manages the dogs to perfection.

Friday, June 23rd.

Made good 7m.
Travelled 11m.
,, 7h. 15m.

1.15 a.m.—Lunch.
2.55 a.m.—Started.
6.40 a.m.—Encamped. Coppinger and myself take it in turns to cook, as Hans has plenty to do with the dogs, &c., &c.

2nd Journey.

S.W. 5 to 7 b. c.
+32°.

6 p.m.—Turned out and cooked breakfast.
8.55.—Started. Travelling, although it is bad, is better than when I was here before.

Saturday, June 24th.

S.W. 3 to 7 b. c.
+33°.
Made good 6m.
Travelled 8½m.
,, 7½h.
S.W. 3 to 7 b. c.
+33°.
S.W. 3 to 6 b. c.
+44°.

12.55 a.m.—Lunch.
2.50. a.m.—Started.
6.20. a.m.—Reached the 48 rations depôt at Newman Bay and encamped. Hans caught a ptarmigan on her nest with nine eggs under her; we had both eggs and bird for supper, and they were perfect, but unfortunately we have no salt.
7 a.m.—Took 2½ gills of rum and 6 cakes of tobacco from Depôt. Saw three seal on the ice of Newman Bay. As we have only 1 box of matches, we have to be very careful.

3rd Journey.

S.W. 1 to 4 o. c.

6.35 p.m.—Called Coppinger. Left a record and 45 lbs. of pemmican at Depôt.
9.40.—Started. Got on to the ice of Newman Bay, but found it so heavy from snow and water, that we again took to the "land-foot," and travelled to the north along the west shore of the Bay.

Sunday, June 25th.

S.W. 2 to 3 b. c.

1.20 a.m.—Sighted a tent on the ice about 5 miles off.
1.40 a.m.—Lunched. Observed a sledge coming towards us, pulled by 3 men.
3.15.—Started with empty sledge, taking the doctor's bag and medicine case. After we had gone about 2 miles across the ice, we saw the sledge stop, and one of the men come on to meet us, which, to my intense delight turned out to be Beaumont. We found out from him that his whole party had scurvy—himself, Gray, and Jones being the three able to pull at all, while the other four, viz., Paul, Jenkins, Craig, and Dobing, having to be dragged on the sledge. By the aid of the dogs we got them all to the point of land where we had had lunch, and encamped there at noon.

Travelled 13m.,
,, 12½h.
S.W. 1 to 2 b. c.

H.M.S. "Discovery," at Discovery Harbour,
5th April, 1876.

MEMO.

Having given you choice of the lines of exploration to be undertaken by us this summer, and your having selected the north coast of Greenland,—

I have much pleasure in placing you in command of an 8-man sledge attached to Lieutenant Beaumont for that purpose, having full confidence in your zeal, discretion, and ability.

You will therefore place yourself in communication with that officer at once, receiving from him all further instructions on this service, and be ready to start to-morrow, victualled for 14 days, in company for H.M.S. "Alert."

Wishing you every success and a safe return, I shall hope to see you again before the month of June.

H. F. STEPHENSON,
Captain.

To Dr. Coppinger, M.D.,
H.M.S. "Discovery."

Sledge Crew.

Jeremiah Rourke, Lg. Stoker (Captain of Sledge).
David Taws, Ice Quartermaster.
James Cooper, Second Captain Main Top.
Thomas Darke, Private R.M.L.I.
George Leggett, Ship's Cook.
John Hodges, A.B.
Benjamin Wyatt, A.B.

H.M.S. "ALERT," at Winter Quarters.
20*th April*, 1876.

Sir,

Taking command of H.M. Sledge "Stephenson," you are to accompany Lieutenant Lewis A. Beaumont, and assist him as much as possible in his journey of exploration along the northern coast of Greenland.

On your being detached from his command you are to return to the established depôt near Repulse Harbour, and after leaving a notice of your movements, if the ice in Robeson Channel remains fixed, you are to return to this ship.

At the Repulse Harbour Depôt, or near that position, you may expect to meet H.M. Sledge "Alert," under the orders of George W. Emmerson, chief boatswain's mate. Should you do so, you are to take his crew under your command.

Should the ice in Robeson Channel be in motion, in which case I shall not despatch the "Alert," after waiting at Repulse Harbour until the 10th May, you are to leave there a record of your proceedings, and proceed to Polaris Bay, and do your utmost to convey to the northward of Cape Brevoort such provisions as may be suitable for the support of one man for 800 days.

Should the icefoot round Cape Brevoort prove to be unfit for travelling, or likely to become so in June, you are to endeavour to ascertain the most suitable road for sledges overland between Newman Bay and the northern coast of Greenland. After exploring this route, you are to leave a notice detailing all the information you may gain in the Record tin at Repulse Harbour Depôt, accompanied if possible by a chart.

On the return of Lieutenant Beaumont to Polaris Bay about the 15th June, you will receive further orders regarding your return to the "Discovery;" or, should Captain Stephenson be able to spare sufficient men, you will be employed in an exploring party during the summer to Mount Washington.

With regard to remarks to be daily noted in your travelling journal, you are to consider my general order of the 21st July, 1875, as being still in force.

Any occurrences noticed and described by such a skilled and experienced observer as yourself, must prove of the utmost value.

G. S. NARES,
Captain, R.N., Commanding Arctic Expedition.

Richard W. Coppinger, Surgeon, R.N.,
H.M.S. "Discovery."

H.M.S. "Alert," at Floe Berg Beach,
(Lat. 82° 27′ N. Long. 61° 22′ W.)
30*th April*, 1876.

Sir,

After consulting with Captain Stephenson, it has been decided that, instead of your party returning to H.M.S. "Alert," as arranged for in your original instructions, your own crew and that of the sledge at present under the orders of George W. Emmerson, are, on arrival at Repulse Harbour about the 10th May, to proceed to Polaris Bay, where you are to await further instructions from Captain Stephenson.

George Emmerson will leave a Depôt of six days provisions at Repulse Harbour for the support of your party; should he arrive there before you, he is directed to proceed to Polaris Bay without delay.

A party will leave the "Discovery," probably conveying a boat, for Polaris Bay about the 10th May. You are to keep a watch for their arrival, and when sighted, assist them forward as much as possible.

G. S. NARES, *Captain, R.N.,*
Commanding Arctic Expedition.

To Dr Coppinger.

H.M.S. "Alert," at Floe Berg Beach.
3rd May, 1876.

NOTE.—These orders were cancelled to Lieut. May, and the substance of them conveyed to Dr. Coppinger.

Sir,

Taking command of H.M.'s Sledge "Clement Markham," provisioned for 12 days, you are to cross Robeson Channel, and after visiting Lieutenant Beaumont's depôt on the Greenland coast, where you may expect to meet Dr. Coppinger, proceed to Polaris Bay.

In passing Cape Brevoort, you may journey round the cape; but if time will admit, I am anxious to explore a passage for heavy sledges overland, east of the cape.

On your outward or homeward journey you are to visit Captain Hall's cairn, at Cape Brevoort, described in the Polaris evidence as constructed "three miles up the bay from Cape Brevoort headlands, near the beach," here, "We built a cairn, and buried a cylinder of records in it." You are to take charge of any documents you may find there, leaving exact copies, with a notice that you have taken the original papers.

You are also to visit the "Boat-camp," said to be "situated at the mouth of a ravine 1½ miles east of Cape Sumner, on the south shore of Newman Bay," and ascertain as well as the accumulated snow will allow you, the state of the two boats and the tents left there. One boat, a whale boat, was left turned bottom up, and secured to the rock with ropes; the other, a canvas boat, had the frame stripped from the canvas to prevent its being blown away. The tents were left pitched, a short distance up a ravine, under shelter of the cliffs.

Any documents or instruments you may discover are either to be brought to this ship or conveyed to Polaris Bay.

The overland journey from Polaris Bay to Newman Bay has been well established by the officers and crew of the "Polaris," and evidently presents no difficulties; but the shore route under the cliffs is considered impracticable for sledges or pedestrians. Any certain information you can obtain relating to it will be valuable.

On the 16th May, you are to replenish your provisions from the depôt at Polaris Bay, in accordance with my memo, of the 30th ultimo. and then return to this ship with Mr. Egerton and the men under his orders, who are now helping to establish a depôt on the Greenland coast for Lieutenant Beaumont, but are ordered to be at Polaris Bay in sufficient time to join company with you.

Mr. Egerton will leave a canvas boat at the Greenland depôt. On arriving there on your return journey, at about the period of spring tides, if you have the slightest reason to doubt the security of the ice in Robeson Channel, you are to carry the boat across the Strait with you. Otherwise it is to be left for Lieutenant Beaumont's use.

Captain Feilden, R.A., Naturalist to the Expedition, will accompany you. You are to regulate your movements as much as possible to suit his labours.

Before finally leaving the Polaris depôt, you are to communicate with Dr. Coppinger, who is provisioned up to the 16th May, and convey his reports &c. for Lieutenant Beanmont to the North Greenland depôt.

On visiting that position on our return, you are to record any information you may have gathered, which is likely to prove of use to Lieutenant Beaumont's party, who will be crossing the land about the 10th of June, after the thaw has commenced, but before the ravines have actually commenced to run.

G. S. NARES, *Captain, R.N.*,
Commanding Arctic Expedition.

Lieutenant W. H. May,
H.M.S. "Alert."

H.M.S. "DISCOVERY," at Barden Bay,
12th. September, 1876.

Sir,

I have the honour to inform you that in compliance with your orders of the 5th April, 1876, herewith inclosed, I took charge of H.M. 8-man sledge "Stephenson," provisioned for 14 days, placing myself under the orders of Lieutenant Beaumont, in company with whom I was to proceed to the winter quarters of H.M.S. "Alert." We accordingly left H.M.S. "Discovery" on the 6th April, and after a ten days' journey, the particulars of which are reported by Lieutenant Beaumont, reached H.M.S "Alert" at her winter quarters, "Floe-Berg Beach." After a four days' sojourn there, I received further orders from Captain Nares (copy enclosed), in accordance with which I set out again on the 20th April, in company with Lieutenants Beaumont and Rawson, carrying on my sledge a depôt of 230 rations, and making for Repulse Harbour, on the north shore of

See page 418.

See page 419.

Greenland. Arriving at Repulse Harbour on the 27th April, a change of sledges took place, Geo. W. Emmerson, C. Boatswain's Mate, taking charge of my 8-man sledge, with orders to return to the "Alert," and I taking the 5-man sledge, carrying a depôt of 123 rations, and having a crew of three men. I now accompanied Lieutenant Beaumont for seven days in his journey of exploration along the north coast of Greenland. On the 4th May we had reached Cape Stanton, a position 20 miles to the north-east of Repulse Harbour, and on the following day, moving back my sledge to the "Stanton Gorge" ($2\frac{1}{4}$ miles S.W. of Cape Stanton), and having assisted in placing there a depôt of 120 rations, for the maintenance of the advance parties on their return journey, I parted company with Lieutenant Beaumont, and, provisioned for 10 days, began to retrace my steps to Repulse Harbour. The outward journey to Cape Stanton with the three heavily laden sledges, having entailed a great expenditure of time and labour, it being necessary to double man the sledges, and cut roads for a great part of the way, Lieutenant Beaumont, on my parting company, judged it expedient that I should receive ten days' provisions for maintenance of self and crew, instead of seven, as previously arranged. Contrary, however, to expectation, this trip was completed in a very short time, the road, which with so much labour had been made on the outward journey, being available for our return. It will, of course, be unnecessary for me here to attempt any description of the nature or configuration of the land about this line of coast, as a full account will doubtless be given in the report of Lieutenant Beaumont. I may, however, observe that between Cape Stanton and Repulse Harbour the only signs of animal life noticed were the tracks of a ptarmigan, a fox, and a lemming, and that wherever circumstances admitted I collected specimens of the rock and Flora of the district.

Arriving at Repulse Harbour on the morning of the 7th of May, I met Sub-Lieutenant Egerton, who with Lieutenant May, a dog sledge, my own 8-man sledge, and nine men, had just crossed the channel from H.M.S. "Alert." Through the former officer I received fresh orders from Captain Nares, countermanding those previously issued, and directing (1) that I was to see that the depôt of six days' provisions for Lieutenant Beaumont's party was properly and securely stowed; (2) that before leaving Repulse Harbour I was to deposit at the Cairn a record for Lieutenant Beaumont, giving all the latest information regarding the route to Newman Bay; (3) that taking command of the sledges "Stephenson" and "Alert," with Geo. W. Emmerson, Chief Boatswain's Mate, and eight men, provisioned up to the 16th May, I was to proceed to Polaris Bay and there await further instructions from Captain Stephenson; (4) that if time permitted I was to journey round the mouth of Newman Bay, near Capes Brevoort and Sumner, visiting "Hall's Cairn" on the north shore, obtaining the record, and inspecting the American Boat Camp on the Sumner shore, removing such instruments and documents as I could carry; and (5) that should I find the route from Repulse Harbour to Polaris Bay likely to prove so bad in the month of June that the provisions left for Lieutenant Beaumont at Repulse Harbour would be insufficient, I was to take measures on my arrival at Polaris Bay to have an intermediate depôt laid out. I also heard from Sub-Lieutenant Egerton that two of my own crew, viz., Benjamin Wyatt, A.B., and John Hodges, A.B., were detained at the "Alert" by illness, the former suffering from a strain of the thigh, the latter from a contusion of the side. The crew of the 8-man sledge was therefore reduced to five. Late in the evening Lieutenant May returned from the "Gap" Valley, where he had been reconnoitring with the dog-sledge, and reported that the overland route to Newman Bay seemed a most favourable one.

Accordingly, having taken every precaution to render secure the depôt on which Lieutenant Beaumont was to depend for his return to Polaris Bay (augmenting it by 20 rations, 12 of which I obtained from Lieutenant May and 8 from our own sledges), and having placed at the cairn adjoining a record for Lieutenant Beaumont stating my movements from the time of parting company, and my present intention of proceeding to Polaris Bay *viâ* the "Gap" valley, we packed up sledges and started at 5·30 a.m. of the 8th May.

Three miles travelling along a good icefoot brought us to the mouth of the Gap valley, when we camped for rest. Early on the morning of the 10th May we reached the shore of Newman Bay, having travelled about 10 miles by the windings of the valley and 8 miles in a straight line from the Gap entrance. For the first $2\frac{1}{2}$ miles the valley (an old sea-bed) presented a straight course with a gentle rise to the southward, then became narrow and tortuous and nearly level, until we had got about 5 miles from the "Gap," when rising rapidly the valley opened on to a plateau elevated about 500 feet above the sea level. Having traversed the plain, a narrow winding ravine about $2\frac{1}{2}$ miles long, led us by a succession of steep snow slopes on to the shore of Newman Bay. This last-mentioned ravine was the only portion of the route across the Brevoort

Peninsula which I considered would offer any material difficulties to sledge travelling in the late spring, but I had observed with satisfaction when on the high plateau that at any point for about 2 miles to the westward of the ravine, a descent could be made to the Bay over ground only thinly coated with snow, but of a gentle and tolerably uniform incline. I was therefore confident that should Lieutenant Beaumont be deterred from following the ravine, where from the steep form of the cliffs the sun would have but few opportunities of thawing the snow bed along which we travelled, he would at all events have a fair alternative.

The point of Newman Bay which I had reached proved to be about 5 miles to the eastward of Cape Brevoort, therefore after coasting about 2 miles to the westward I came to the position of Captain Hall's Cairn. Here I found "the record" in a good state of preservation, buried ten feet east (true) of a stone at the *margin* of the cairn on which was cut "10 FEET E." Having taken the original document and deposited in its stead an accurate copy accompanied by a brief account of my past and projected movements, I proceeded across the mouth of Newman Bay towards the Boat camp. The latter I found situated, as expected, about 1½ miles from Cape Sumner, but only 5½ miles by floe from "Hall's Cairn." We camped on the floe about a quarter of a mile from the site of the tent and boats, and although our stay extended over 40 hours, we were most of the time confined to our tents by a gale from the southward, and consequently unable to make a very complete examination of the American stores. One tent we found near the mouth of a ravine, collapsed, frozen to the ground, and partially covered with snow. The whale boat lay bottom upwards on a flat piece of land about 100 yards from the beach, lashed down to heavy stones and frozen in by mud; while the canvas boat was with difficulty discovered buried in snow and lying about 80 yards from the whale boat and 200 from the tent. The whale boat was stove in on the starboard bow, for which defect the materials necessary for repair were at hand, and was in other respects a good serviceable boat. Expecting to find 2 tents to correspond with the 2 boats, I searched in various directions for a second but in vain. Therefore having made a rough list of such stores as circumstances would admit of our examining, having packed upon the sledges the instruments and documents which I could transfer to Polaris Bay, and having erected a conspicuous cairn and attached thereto a record of proceedings, we struck tents, packed up, and proceeded to the eastward.

See page 61.

When about 4½ miles to the eastward of the "Boat-camp," we saw on the summit of one of the small hills on the north coast of the Polaris Peninsula a cairn, which I visited, detaching myself from the sledge parties for a short time for the purpose. Here I found a record enclosed in copper cylinder and signed by Captain Buddington. I took the original, deposited a copy in its place, and rejoining the sledge parties, we continued our journey down Newman Bay.

Not printed.

We reached on the 13th May without any difficulty the south-west angle of Newman Bay, being however somewhat puzzled on the way by the inaccuracy of the chart supplied, which does not correctly delineate the western or Polaris shore of the Bay. Leaving the shore of the Bay at 3·45 a.m. of the 14th May, we pursued as nearly as possible a W. by N. course across the elevated plain of undulating hills which extends between Newman and Polaris Bays. The air having been for the most part thick with driving snow, I could rarely sufficiently distinguish the configuration of the land to enable me to institute a comparison with the chart. When travelling down the floe of Newman Bay we were gratified by the sight of a fresh bear track, but from that time until we reached Polaris Bay, saw no trace of animal life.

At 6 p.m. of the 15th May we arrived at the position of the Thank God Harbour Observatory, where you Sir were at the time encamped with Lieutenant Fulford, Sub-Lieutenant Conybeare, Mr. Hart and 27 men, having brought 2 ice boats over from Discovery Harbour. I then, Sir, reported to you verbally the progress of events from the time of my parting company with Lieutenant Beaumont, committing to your charge Captain Hall's record, Captain Buddington's record, and the instruments and documents removed from the American boat camp; and stated my opinion that the provisions left at Repulse Harbour would be hardly sufficient for the support of Lieutenant Beaumont's party on their journey to Polaris Bay in the late spring, and that therefore it would be advisable to lay out an intermediate depôt.

My sledge crews were then in good health and in excellent spirits. As from this date I ceased to have charge of a sledge, I must here bring to your favorable notice the behaviour of all the men under my immediate command, mentioning especially that James Cooper, 2nd Captain Maintop, was conspicuous for the alacrity with which he came forward to execute those duties for which by his training as a seaman he was specially adapted, that the conduct of Thomas Darke, Private Royal Marine Light

Infantry, throughout the whole sledging season was beyond all praise, and that Jeremiah Rourke, Leading Stoker, proved a most steady and trustworthy "captain of the sledge."

From this date, according to the orders with which you then furnished me I was attached to the party of Lieutenant Fulford, accompanying him on his journey to Newman Bay, where he placed a depôt of 48 rations for Lieutenant Beaumont's party, and subsequently in his journey of exploration down the Petermann Fiord. *Not printed.*

The party employed on these expeditions consisted of Lieutenant Fulford, Frank Chatel, Captain of the Forecastle, Hans the Esquimaux, and myself, with a team of 8 dogs. We started for Newman Bay with the depôt on the 17th May, returning to Polaris Bay on the 21st. On the 22nd we set out for the Petermann Fiord, and having attained a distance of 19 miles S.S.E. of Offley Island, examined the glacier, and visited both shores; retraced our steps, returning to Polaris Bay on the 7th June. Noticing before we started on this last expedition that Frank Chatel, Captain of the Forecastle, exhibited symptoms of a scorbutic taint, I recommended Lieutenant Fulford to take with him for the journey a supply of strong lime juice and molasses. In addition to this remedy we availed ourselves of a supply of seal meat with which the Esquimaux Hans provided us, so that the seaman above-mentioned was maintained in a fair state of health throughout the journey.

On arriving at Thank God Harbour on the 7th June, we found Lieutenant Rawson encamped there with 3 men and the dead body of James Hand, A.B., who had died of scurvy on the 3rd inst. This party had been detached from the North Greenland division on the 10th May to convey to a place of safety the deceased, who at that date manifested signs of scurvy. Of Lieutenant Rawson's 3 men, 2 were suffering from scurvy, viz., Geo. Bryant, Captain of the Main Top, and Michael Regan, A.B.; the former bed-ridden and in a most critical condition, the latter crippled in the legs, but otherwise not seriously affected. On inspecting the dead body of James Hand I found all the usual superficial signs of advanced scurvy manifested to a marked degree.

From this period my duties have been almost entirely of a professional nature. Within ten days of the time of our arrival at Thank God Harbour, Bryant's life was out of danger, thanks to the supply of lime juice, and to the seal meat, which our indefatigable Esquimaux obtained for us, and Regan was rapidly progressing towards recovery.

The *early* separation of Lieutenant Rawson's party from that of Lieutenant Beaumont, had removed from our minds all former apprehensions as to the inadequacy (under ordinary circumstances) of the stock of provisions left at Repulse Harbour; but, on the other hand, judging from our knowledge of the appearance of scurvy in three of the North Greenland party, we were alarmed lest the remainder of the party might be in time so crippled by disease as to prevent their reaching Polaris Bay without assistance. It was accordingly decided that a relief party should set out on the 22nd June (Lieutenant Beaumont being fully provisioned up to the 28th), and proceed by the usual route towards Repulse Harbour; and on my representing to Lieutenant Rawson (senior officer), that my attendance on the sick at Polaris Bay was no longer necessary, all progressing favourably towards recovery, and that the non-arrival of Lieutenant Beaumont's party was probably due to sickness, he decided that the relief party should consist of himself, Hans, myself, and a team of 8 dogs, carrying 16 days' provisions, and a half gallon can of strong lime-juice, with molasses to correspond.

The above party started from Thank God Harbour on the 22nd June, and on the 25th instant, near the north arm of Newman Bay, met with Lieutenant Beaumont. Our worst apprehensions were realised. His party were in great distress. Four of the men were bed-ridden, and in a dangerous condition; two were crippled, and only just able to walk; while Lieutenant Beaumont himself also affected with scurvy, presented a worn and haggard appearance, but was still clear-headed, and full of energy.

We now at first delayed in order to procure seal meat in Newman Bay, and to rest and partially revive the most enfeebled before starting across the plain; but Hans, who strained every nerve to capture a seal, reporting to us with the deepest dismay that all his efforts were futile, on account of the deep wet snow which covered the floe, we finally decided to lose no time in getting over to Thank God Harbour. When about 12 miles by land from Thank God Harbour, where there was an abundant supply of fresh meat, &c., suitable for the sick, Charles W. Paul, A.B. (the worse case), showed such indications of sinking that we determined on sending him in with all expedition on the dog sledge. Accordingly, with an 8-man-sledge, fitted as an ambulance, and Paul and Jenkins (another bad case) comfortably stowed thereon, Hans and I, with a team of 8 dogs, set

off at noon of the 28th June. At 11.30 p.m. of the same day we reached the camp at the Thank God Harbour Observatory, with the sick apparently none the worse for the journey. Here we were received by Lieutenant Fulford. On the evening of the following day, the 29th June, Paul, who in spite of all our efforts had been sinking steadily and rapidly for the previous 7 hours, died.

The remainder of the party got in on the 1st July, and after a few days all began to make rapid strides towards recovery. For this we were mainly indebted to the supply of seal meat, wild fowl, lime-juice, and sorrel, which was here available.

On the 12th July Lieutenant Fulford started for H.M.S. "Discovery," accompanied by two of our former scorbutic patients, viz., Chatel and Regan, now restored to health. Through this officer you received information as to our condition at Polaris Bay, and consequently you made that journey across the Hall Basin, arriving at Polaris Bay on the 19th July, to which we were indebted for supplies of wine and other medical comforts for the sick.

On the 29th July you started to return to H.M.S. "Discovery," taking with you two of our convalescents; I having previously reported to you that two others, viz., Craig and Dobing, were not then sufficiently strong to endure a journey over the loose ice, but would probably be so in about a week later. The entire effective strength of the party was therefore divided, so that the two bodies travelling across with an interval of about a week, might be fairly balanced.

On Friday, the 4th August, the remainder of the party were prepared to start, but were detained by thick and stormy weather until the 8th instant, when we finally left Polaris Bay. During the journey which ensued, the particulars of which are reported by Lieutenant Beaumont, the endurance of our scorbutic convalescents was necessarily put to a severe test, but I am happy to add that on our arrival on board, on the 15th August, all the party, with two exceptions, were in good health, these two having merely received a temporary check in their progress towards complete recovery.

Before concluding, I must express my sense of the invaluable nature of the services which the Esquimaux, Hans Hendrick, has rendered to the sick, as well as of the unflagging zeal and energy with which he has performed every duty entrusted to him. So fertile was he in expedients, so keen in appreciating the requirements of the sick, and so skilful in hunting, without his aid we might have had to deplore a larger mortality.

I have the honour to be, Sir,

Your obedient servant,

R. W. COPPINGER, M.D.,

Surgeon, R.N.

To Capt. H. F. Stephenson, R.N.,
H.M.S. "Discovery."

5th May.

2.25 *a.m.*, having assisted in securing the 120 ration depôt on which the advance party are to subsist on their return journey from here (the Stanton Gorge) to Repulse Harbour, I part company with Lieutenant Beaumont, and proceed to retrace my steps along the track so well marked by our outward-bound heavy sledges. This light 5-man sledge follows us with the greatest ease, the weight pulled by each one, with all hands at the drag ropes, being only 132 lbs. Having proceeded along the icefoot for half a mile, we halt for lunch, pitching tent at 2.50 a.m. Temperature, $-12°$. Calm. b. c. At 4.20 a.m. we are again on the march, at first along a steep snow slope, half a mile in length; then the coast line becoming cliffy we take to the floe, when we pursue a course nearly parallel to the shore. At 8 a.m. we halt, and camp on a large floe, nearly abreast of the "Black Horn Cliffs." 4 hours on the march. Travelled 7 miles. Made good 6′. Temp. $+ 1°$. Wind S. 5, c. s. Black Horn Cliffs bearing S.W. by W. 1 mile, and east cape of Repulse Harbour, S.W. by W.

Call cook at 4.45 p.m. Temp. inside $+ 5°$. Wind shifted during the night, then lulled, and finally blew lightly and steadily from the N.E., its usual quarter. The snow of last night has in places obliterated all traces of our outward march. 6.15 p.m., breakfast ready. Temp. outside, $- 8°$. Before starting I make a rough sketch of the coast. 8.15 p.m. on the march. 11.40 p.m. halt for lunch, on the icefoot at the camping ground of our second journey, when outward bound from Repulse Harbour. Worked $3\frac{1}{2}$ hours without a check, following the old track over the floe. Wind has veered round since we started from N. through W. to S. Now blowing 5—6 from S., and as we march driving a fine snow obliquely on our faces. Temp. $+ 1°$ b. c.

REPULSE BAY S.E. 8 MILES FROM CAMP OF 26TH APRIL 1876

Harvard University

6th May.

We resume our march at 1.40 a.m., travelling along the icefoot inside the shore hummocks. Arriving at "Snow Point" and "Drift Point," we find the travelling much worse than we expected, the deep ruts made by the heavy sledges having got filled up by the late snow, so that our sledge runners get clogged in the ruts, and the sledge trough buried by the increased depth of snow. At Snow Point the angle of inclination of the slope along which we travel is 15°. From here to Drift Point we drag along a slope 200 yards in length, and inclined at an angle of 15° to 20°. Here in one place we pass over a drift pit, where the angle of snow incline is 23°, and the snow hard. This seems to be the greatest inclination of hard snow slope along which our sledges can be dragged without slipping away sideways. Our progress along these slopes entails a long succession of standing pulls, with frequent short pauses to recover breath. At 6.10 a.m. we halt, and camp about the site of Lieutenant Beaumont's first camp when going out from Repulse Harbour. Wind has been for many hours altering in force and direction in a strange manner. About midnight there was a lull. At 3 a.m. it blew lightly from the southward, and at 5 a.m., veering suddenly round, blew in heavy gusts from the N.E. This continued for about 10 minutes, when it chopped back as rapidly, and blew from the southward with a force, 6—7.

Eight hours on the march. Travelled 8 miles. Made good 7. 7 a.m., temp. — 1°. Wind S. 6—7. c.

Call cook at 7.20 p.m. Temp. inside + 10°. Wind abated during the day; now S. 1—2. c. o. Temp. outside + 2°.

At 11.15 p.m. we set out, the east cape of Repulse Harbour being only a few miles ahead of us, and the road good. We come upon a ptarmigan track, the second which I have seen upon this coast, and which with a lemming and a solitary fox track, make up all the signs of animal life which I have yet observed upon this cheerful (?) north coast of Greenland.

7th May.

At 2.30 a.m. we halt for lunch, on the shore of Repulse Harbour, about 2 miles from the depôt. Temp. + 4°. Wind 4—5 S. Start again at 4.30 a.m., and in 2 hours arrive at the depôt, where we find a sledge party just about to encamp. It consists of Sub-Lieutenant Egerton, with 6 men of H.M.S. "Discovery," 1 belonging to H.M.S. "Alert," and my original 8-man sledge. He informs me that he has just come from the "Alert," in company with Lieutenant May, who is now away with the dog sledge, looking for a probable route overland to Newman Bay; that 2 of my sledge crew have been detained at the "Alert," by illness, 1 (Benjamin Wyatt, A.B.), suffering from strain of the thigh, the other, John Hodges, A.B., suffering from a contusion of the side; and that he brings me fresh orders from Captain Nares, which cancel those previously in force. The substance of these orders (contained in three separate documents) is:— 1. That I am to see that the depôt of 6 days' provisions for Lieutenant Beaumont's party, now committed to my charge by Lieutenant May, is properly stowed and secured here. 2. That before leaving Repulse Harbour, I am to deposit at the cairn a notice for Lieutenant Beaumont, giving all the latest information regarding the best route to Newman Bay. 3. That taking command of the sledges "Stephenson" and "Alert," with George W. Emmerson, chief boatswain's mate, and 8 men, provisioned up to the 16th May, I am to proceed to Polaris Bay, and there await further instructions from Captain Stephenson. 4. That if time permits I am to journey round the mouth of Newman Bay, near Capes Brevoort and Sumner, visiting "Hall's Cairn," on the north shore, for the purpose of obtaining the "record," and inspecting the American boat-camp on the south shore, removing such instruments and documents as I can carry. 5. That should I find the route from Repulse Harbour overland likely to prove so bad in the month of June, that the provisions left for Lieutenant Beaumont would be insufficient, I am to take measures on my arrival at Polaris Bay to have an intermediate depôt laid out.

At 11.15 a.m. Lieutenant May comes in on the dog sledge, accompanied by the Esquimaux Frederick. He tells me that he has just been reconnoitring an overland route to Newman Bay, and that from the summit of a hill about 3,000 feet high he saw that the Gap Valley, which begins a few miles to the westward of Repulse Harbour, extended in a tolerably direct course to the floe of Newman Bay. All hands now turn in for rest.

8th May.

Call cook at 7 p.m. Temp. outside + 7°; wind, S.W. 3—4. After breakfast I set the men to work to collect large stones for the protection of the depôt, and finding

that I can spare eight rations from my own stock of provisions, and Lieutenant May giving me 12 of his, I increase Lieutenant Beaumont's depôt from 72 (its original amount) to 92 rations. We next secure the whole under a pile of large stones and attach immediately outside a spare sledge-runner, which Captain Nares sent over for my sledges, but of which I have no need. Lieutenant Rawson, whose sledge has been for a long time partially disabled, will probably find it of use. We also leave in depôt a collapsible boat, brought over by Lieutenant May.

At 3.30 a.m. we go to lunch; temp. +5 °. Lieutenant May and Sub Lieutenant Egerton set out with the dog sledge on their return journey to the "Alert," and by them I transmit to Captain Nares a letter from Lieutenant Beaumont, as well as a brief report of my own movements. I next write a note for Lieutenant Beaumont, mentioning the change in my programme, detailing the condition of the depôt, and the news of the route to Newman Bay, as seen by Lieutenant May. This letter being placed in the record cylinder at the cairn which marks the position of the depôt, our work at Repulse Harbour is concluded.

Not printed.

We start at 5.30 a.m. and proceed along an excellent ice-foot towards the mouth of the Gap Valley. The cliffs of this coast under which we pass present a bold, unweathered surface of dark limestone, apparently devoid of fossils, but containing some yellow ore (probably iron pyrites), of which I get specimens from the fresh talus. At 8.40 a.m. we reach the mouth of the Gap Valley and prepare to camp on a low flat piece of land, bordered by old-raised beaches; 200 yards from us is the ridge of shore hummocks, which along this part of the coast forms a huge barrier, separating the ice-foot (or landfoot) from the floe. From this position the S.W. cape of Repulse Harbour bears E. by N. $\frac{1}{4}$ N.

Three hours on the march; made good 4 miles. Temp. + 5°; wind, S. 2—3.

Call cook at 6.30 p.m. Temp. inside, + 35°. Warned the men to have their canvas boots ready to put on in case we should come to bare shingly ground. Temp. outside, + 5°; wind S., 1—2, 6.

At 10 p.m. started and proceeded along the Gap Valley, which for the first $2\frac{1}{2}$ miles is a plain half a mile in width, sloping up to the southward by a gentle gradient, and lined on both sides by unmistakeable raised beaches. On either side rise cliffs and peaked mountains from 2,000 to 3,000 feet in height; the cliffs on the east side, of whose rock I obtained specimens, being formed of vertical slightly-contorted layers of a clayey barren limestone. All about this $2\frac{1}{2}$-mile reach of the valley we find numerous fragments of shells, which mark the area of the old sea-bed. Some of the raised beaches present clearly-cut sections 20 feet high, showing well-defined alternate layers half to two inches thick of stratified mud and sand. Bottled specimens from various levels for microscopic examination.

As the valley loses its marine character, we enter a narrow winding gully, nearly level, and bordered by rounded hills of about 200 feet in height. While prospecting from the summit of one of these I pick up a drift fossil, apparently a worn cupcoral. Frequently in the sides of the gully we pass rock in situ, not covered by snow, and consisting in some places of a calcareous slate; in others of a confused mass of clayey limestone in the form of rectangular sticks one to two feet in length.

9th May.

At 2 a.m. we halt for lunch. Temp. + 3°; wind, S. Start again at 3.45 a.m., following the sinuosities of the gully (now widening into a valley), the travelling being excellent, and the general direction S. by W. from the east headland of the Gap entrance. In about three hours the valley leads us by a gentle rise to an elevated plateau about 200 feet above the sea-level, and covered with hard crusted snow. Having traversed this plateau for about half-a-mile, the floe of Newman Bay comes into view for the first time, appearing to be about two miles off. We now find right in the course which we have been pursuing, a ravine leading down towards Newman Bay; and, expecting to find in it better snow travelling than on the land above, determine on following it.

At 7.45 a.m. we halt and camp in this ravine. Temp. + 4°; eight hours marching. Travelled 8 miles; made good 6.

Call cook at 6.30 p.m. Temp. inside, + 11°; outside, +3°. Wind, S.W., 2. Light snow showers during the day, but now clear bright weather.

9.30 p.m.—We start and proceed down the ravine, which soon degenerates into a narrow tortuous gully, whose precipitous sides of clay slate approach so closely in places as only just to give passage to the 8-man sledge. The bottom is, however, well packed

Compass bearings (true) from South end of Gap Valley.

Peaked Cliff (see sketch)	**SSE**
Boat Camp Ravine	**WSW¼S**
Cape Sumner	**WSW¼W**
Cape Brevoort	**WNW½N**
Northernmost trend of Newman Bay	**ESE**
Axis of South arm of Newman Bay	**SE b S**

Compass Bearings (true) from Halls Cairn.

Peaked Cliff (see sketch)	**SSE½E**
Cape Sumner	**SW b W**
Cape Brevoort	**W b N**

Sextant Angles from South end of Gap Valley.

Cape Sumner 0.	
Cape Beechy	*10° 56'*
Cape Frederick VII	*21° 39'*
Highest Cliff	*38° 30'*
Cape Brevoort	*45° 19'*

Index Error 1' off

Peaked Cliff 0	
Next peak to Westward	*21° 20'*
Boat Camp Ravine	*84° 19'*
Summit of Mountain "A"	*81° 10'*
Cape Sumner	*92° 12'*
Cape Beechy	*102° 29'*
Cape Frederick VII	*114° 1'*
Highest Cliff / *Cape Brevoort*	

NORTH SHORE OF "POLARIS PROMONTORY" FROM CAMP OF 9TH MAY 1876 (2½ MILES NORTH OF SOUTH END OF GAP VALLEY.)

Daugerfield Lith 22 Bedford St Covent Garden

with snowdrift, and being sheltered from the sun by vertical cliffs, will probably remain a good road for sledging until the spring is far advanced. This ravine, from its commencement in the high plateau, slopes rapidly to the southward, *i.e.*, towards Newman Bay. We spend a deal of time road-making along the sides of snow-slopes, cutting down opposing snow-banks, and with drag-ropes reversed, easing the sledges down steep inclines. In one place we lower sledge down a little snow precipice 16 feet deep.

10th May.

At 12.40 a.m. we reach the shore of the bay and halt for lunch. Travelled 2½ miles; made good 2. Temp. + 4°. Clear bright day. From this position I take a round of compass bearings and sextant angles, with a sketch of the opposite shore, of which the annexed is a copy.

We start again at 3 a.m. and proceed along the floe to the westward, purposing to visit Captain Hall's cairn, which is said to be about three miles from Cape Brevoort. In half an hour we see the cairn standing conspicuously upon a projecting tongue of bare land, and at 4 a.m. reach the ice-foot just abreast of it. The cairn—a conical pile of stones—has at its south edge a squarish block of stone on which is deeply cut "10 Feet E." Beside this is an upright slab, on which is cut "1° F. E.;" and on the ground, at the north side of the cairn, is a board (part of a box), on which is cut with the knife "10 Feet E." Acting upon this ambiguous information, I at first tried for the record at the stated distance and direction (both true and magnetic) measured from the centre of the cairn; and the ground being frozen so hard that each stroke of the pickaxe detached only a splinter of clay, a good deal of time and energy was thus expended to no purpose. However, I ultimately found the record buried four inches deep, and 10 feet east (true) of the square stone at the south edge of the cairn. As the copper cylinder containing the record had its lid neatly cemented on with some waxy substance, the contained document was in an excellent state of preservation. I now removed the original document and cylinder (the cylinder having been accidentally perforated by a pickaxe blow), made an accurate copy of the record, appending thereto a brief account of the circumstances under which I took the original, with a notice of my past and projected movements; and, enclosing these in a fresh cylinder, buried it in the site of the old one. *See page* 61.

In the rubble near the cairn found a fossil coral, and on bare patches of shingle near the ice-foot, great clusters of shells of Astarte, Mya, and Saxicava.

While occupied in copying Captain Hall's record (a tedious process, as a cold wind had sprung up from the southward), I ordered "Rourke," the captain of the 8-man sledge to go on a-head, telling him to proceed across the bay in line with a particular ravine near Cape Sumner.

At 7.20 a.m., the work at the cairn being completed, I started with Emmerson and the 5-man sledge, and pulling light weights followed quickly in the tracks of the other sledge. A smooth floe of young ice extended across the mouth of the bay, and this trip would, consequently, have been a rapid one, but that the southerly breeze which blew right in our faces was every moment increasing in force. We consequently travelled rather slowly, and only came up with the 8-man sledge after it had halted about 100 yards from the cliff and a quarter of a mile from the mouth of the ravine. I had no doubt that this must be the ravine "1½ miles from Cape Sumner," near which the Americans had left their boats and tents.

10 a.m.—Camped. Temp. + 9°. Wind S., 8—9. m. s. q. Although our tents are pitched among heavy hummocks, and only 100 yards from and on the lee side of high cliffs, we seem to feel pretty nearly the whole force of the gale.

Travelled in the journey 10 miles; from "Hall's cairn" to the boat-camp I estimate at 5½ miles.

Call cook at 9.30 p.m. Temp. + 4°. Blowing all day from S.E. in frequent heavy squalls of force of a gale.

11th May.

After breakfast finding that we are almost weather-bound, I go out alone and walk towards the mouth of the ravine to reconnoitre. I find the tent lying as described, near the mouth of the ravine, but collapsed, frozen to the ground, and almost buried in snow-drift. The whale-boat is conspicuous, lying bottom upwards on a mud flat about 100 yards from the beach. No second tent is visible. At 2 a.m. the gale having somewhat abated, I take two hands from each sledge-crew, with picks and shovels, and set to work to dig out, examine, and catalogue the effects stowed in the tent. Great difficulty is experienced in getting at some of the gear, the bags, for

instance, being frozen so stiffly that it is impossible to examine their contents without, tearing them in pieces; consequently some articles may have escaped observation.

We next go to the whale-boat. Her gunwale had sunk in the mud and become frozen-in, so that it had to be unearthed with pickaxes; and she was, moreover, firmly lashed down to heavy stones placed along both sides. We raised one side, propped it up, and overhauled the contents. The latter seemed, in most cases, to have been but little affected by the weather; for instance, some biscuit, of which there was about 20 lbs. lying loose in the lockers, was in good condition

The boat herself had been stove-in at the bluff of the starboard-bow, midway between keel and gunwale, one of the outer planks being involved to the extent of 7 × 5 inches. This defect could easily be remedied by materials available on the spot, viz., canvas, copper-sheeting, hide, and tacks. The upper part of the gunwale on the port quarter was also slightly injured, but in all other respects the boat was sound. The oars were not to be found.

4.30 a.m.—Lunch. Temp. + 10° Wind, S. 7—10, s.q.

At 6.30 a.m., taking two fresh hands from each crew, I return to the boat, and having removed to our sledges such articles as the chronometer, sextants, &c., which I am instructed to convey to Polaris Bay, we restow and re-secure it.

At 10.30 a.m., we return to camp and prepare supper. Temp. + 14°. Weather as bad as ever. Horrible. Wind, S., 8—10, s.q.

Call cook at 7 p.m. Sky very dark and overcast all around. Wind not so fierce but still strong in the gusts. Snow driving off the hills. Temp. + 14°.

At 10 p.m. taking three hands I return to the boat-camp, and spreading in different directions, we proceed to search for the canvas-boat. We eventually find her buried in snow, and lying about 80 yards from the whale-boat, and 200 from the tent. We remove the stones which weigh down the canvas, examine, and catalogue the contents, and quickly re-stow. Finding beneath her six 14-foot oars marked "canvas-boat," we take and secure them alongside the whaleboat, so that the latter, at all events, may be thoroughly serviceable when wanted.

We next erect a cairn in a conspicuous position, and affix thereto a record mentioning the position of the tent and boats, the condition of the stores found in them, and the movements of our sledges.

12th May.

At 12.30 a.m. we return from the boat-camp, and the wind being now light although squally, we pack up and prepare to start. Sky still overcast. At 2 a.m. we start and proceed to the eastward along the floe, keeping about half a mile from the south shore of this part of the bay.

3.30 a.m.—Halt for lunch, having travelled about three miles. Wind S., 7—8. There being no snow on the ice hereabouts, we have great difficulty in setting up the tents. Latterly we have made it an almost invariable practice to pitch tent for lunch, cooking inside and making the halt extend over about two hours. The men thereby obtain a good comfortable rest, and fully appreciating the benefit of it, have now got into the habit of setting up the tent and re-stowing it on the sledge with the greatest expedition. To-night we must cut short our lunch-halt as we can hardly keep the tents from blowing away. Start at 4.30 a.m.

At 6 a.m., seeing what appears to be a cairn on the summit of a hill about 300 feet high, and on the west side of the mouth of a ravine, and the wind being now after us. I halt the sledges, order the men to make sail on the 8-man sledge, and take the 5-man in tow, while taking Darke, private marine, with me, I proceed up the hill to examine the cairn. We find in its base a copper cylinder, containing a record signed by Captain Buddington, and giving some general information about the cruise of the "Polaris." I take the original, deposit a copy, and after rebuilding the cairn, proceed to rejoin the sledges. At 9 a.m., the wind having fallen light, we disconnect sledges and go on singly. Having made a rough sketch of this coast from the south part of the Gap valley as I approached Newman Bay, I have now no difficulty in ascertaining my position by the points of land passed by.

Not printed.

At 9.30 a.m. we halt and camp under the lee of an old hummock, about 100 yards from the beach. The direction of the coast-line now alters from east to south-east, and the land loses it cliffy character. From the boat-camp up to this point, the rock of the cliffs is a very dark non-fossiliferous limestone. Obtained specimens from fresh talus.

Close to our tent are the tracks of a bear, which seem quite fresh, and indeed must be so, as it has been snowing nearly all the journey, and is only just now clearing up.

West shore of Robeson Channel from south end of Cap Valley, Newman Bay.

EL FROM SOUTH END OF CAP VALLEY, NEWMAN BAY.

Six and a-half hours on the march. Travelled 7½ miles; made good, 7. Temp. + 12°. Sun just trying to break through the mist.

Call cook at 8 p.m. A dull cloudy day. Temp. + 9°. Wind, N.W., 5—6. Foggy.

At 11.30 p.m. we start with both sledges, under sail, and rattle along famously; our road for the first two miles being over a young floe covered with caked snow which just bears the sledges, and subsequently over an old floe mottled with low rounded glassy hummocks. We are averaging quite two miles an hour, but unfortunately the air is so thick from the driving snow that we can scarcely see a mile ahead.

13th May.

At 3.45 a.m. we halt for lunch, having travelled about 8 miles. Temp. + 7°. Since we started, the country adjoining has been comparatively low; from a shelving beach, the land, rising to a ridge about 200 feet high, which seems to be parallel to the shore. Half-an-hour since, when half a mile off the land and steering a south course which, according to the chart, ought to bring us by an uninterrupted floe to the south-west angle of the bay (the place where the Americans usually took to the land when crossing to Thank God Harbour), to my surprise we came upon an icefoot which, veiled as it was in the mist, seemed to run across our course from west to east. Going straight over this, we found ourselves on low shingly ground covered with hard snow; and after travelling over half a mile of this land, we came to another icefoot, and again on to the main floe. From this I surmised what on the fog lifting I had ocular proof of, viz., that we had been passing over a long low tongue of land of which there is no sign whatever in the chart.

The fog clears away while we are at lunch, and we have a most satisfactory view of the south end of the bay, distinguishing the islands, and a ravine about fiye miles off in the position, where according to the chart we ought to take to the land. Men working very well; in good spirits, and much pleased at the prospect of travelling over land where game is supposed to be abundant.

At 6 p.m. I walk on ahead to reconnoitre a good place for getting the sledges on to the land, directing the captain of sledges to follow on as soon as they have finished lunch. Before I have gone half a mile from the tent I get into deep snow, sinking about 10 inches at every step. The distance to the ravine, moreover, lengthens out to a long 5 miles, and on getting there I find the snow so deep and soft (reaching half way up the thighs) as to render it an impracticable road for sledges. The mean level of the so-called plain by which we have to cross to Polaris Bay being about 200 feet above the floe of Newman Bay, and the plain terminating on the eastern side, in a ridge about 250 feet high and 80 yards from the icefoot, the gradient, from beach to ridge is rather much for sledges. Fortunately I find a gully a quarter of a mile to the northward of the ravine, and leading by a practicable slope to the plain. This I decide on taking.

At 10 a.m. I rejoin the sledges at the rendezvous at mouth of ravine, the 5-man sledge having come up at 9 a.m., the 8-man at 9.30. Men rather tired by the pull through the soft snow. At 10.15 a.m. we start again, and proceed to work sledges up the bed of the gully selected. We are obliged to double-man for about 100 yards of the way, and take several spells to recover breath. At 11.30 a.m. the desired elevation is attained, so we halt and camp.

9 hours marching. Travelled 12 miles. Temp. + 7°. Wind N.W. 2.3 b.

14th May.

Call cook at 12.15 a.m. Overslept myself, so very tired after last journey. Clear bright day. Temp. + 4°. Wind N.W., 2—3.

Started at 3.45 a.m., for the first half mile proceeding at a gentle ascent along a chain of winding hollows, thickly covered with snow, and presenting a most monotonous appearance. No vestiges of animal life. For the ensuing four hours our course is as nearly as possible westerly across an undulating plain of hills and hollows, covered with partially caked snow, and affording rather bad travelling.

At 8.45 a.m. we halt for lunch, having travelled about 4 miles. The southern limit of the hills in the Cape Lupton direction seem to bear W. by S. Temp. + 14°. Wind E.N.E., 6—7, and freshening rapidly. Very thick and stormy-looking to windward, and in the Polaris Bay direction the air is filled with fine driving snow.

At 11 a.m. we start again, with both sledges under sail. The 5-man sledge, not being supplied with a sailing-thwart or spectacle-block, gives a good deal of trouble and delays us very much. The "Stephenson" sails admirably, although the snow is very

deep in places, and she occasionally buries her lee runner. The snow is everywhere very soft, but the wind for the most part carries the sledges along, and we have merely got to güide and occasionally help them out of drifts.

At 5 p.m. we halt and camp. Travelling very bad for the last four hours. The snow so soft that walking has been most laborious; however, this latter is about all that we have had to do.

Travelled 8 miles. Made good towards the Observatory about 6 miles. 11 hours on the march. Temp. + 8°. Wind E., 5—6.

15th May.

Call cook at 4.10 a.m. The late long journeys and long rests have brought us round to day travelling. Temp. + 4°. Wind N.E., 6—7.

Just after entering tent last evening, experienced an attack of snow blindness. Beginning with a sensation as of "dust in the eyelids," intolerance of light quickly followed, and in about a quarter of an hour there arose a constant dull circumorbital pain, accompanied by a burning sensation all through the eyeball. Both eyes equally affected. It doubtless arose from the strain put upon the eyes during the day, in endeavouring to peer a way through the mist. We all find this thick weather more trying to the eyes than the glare of the bright sun. I was obliged to shut myself up in my bag to escape from the influence of the light, but previously got one of the men to put a drop of Vinum opii in my eye, from which in half-an-hour I experienced much relief. This morning eyes are all right. None of the men have as yet suffered from snow blindness, but Darke, private marine, occasionally finds his eyes rather tender. All habitually wear their glasses, and regularly change their positions in the drag-ropes.

We start at 8.10 a.m., dragging as well as sailing, the wind having fallen light. Our road is still the same undulating plain, covered everywhere with soft snow, without a track of bird or beast, and presenting to the eye as dreary and monotonous an aspect as can well be imagined.

At 12.30 p.m. we halt for lunch, having reached a long ridge about 100 feet above the mean level of the plain (which it seems to bound to the westward), and extending in a north and south direction for about 8 miles. Here for the first time we obtain a view of Polaris Bay. Temp. + 7°. Wind E. 6—7. Silurian fossils among the shingle on summit of ridge.

Start again at 2 p.m., and there being a difference in level of about 300 feet between our position and the floe, we have for the last 3 miles of our journey to Thank God Harbour, an incline down which our sledges travel with the greatest ease.

At 6 p.m. we halt and camp on the icefoot of Thank God Harbour, immediately below the Observatory. Here we find in camp Captain Stephenson, Lieutenant Fulford, Sub-Lieutenant Conybeare, and Mr. Hart, with 27 men of H.M.S. "Discovery." They arrived three days ago, bringing two ice-boats.

I now report verbally to Captain Stephenson my experience of the route by Newman Bay from the north coast of Greenland, and recommend that Lieutenant Beaumont's stock of provisions for the journey be increased. I also hand over to him the instruments and documents which I have brought from the "boat camp," as well as Captain Hall's and Captain Buddington's records. Captain Stephenson states his intention of sending Lieutenant Fulford at once to make a depôt of provisions in Newman Bay, and gives me orders to accompany Lieutenant Fulford in his exploration of the Petermann Fiord.

My sledge crews are to be amalgamated with those of Sub-Lieutenant Conybeare, and to return direct to H.M.S. "Discovery" immediately after the wind abates.

REPORTING CONDITION OF NORTH GREENLAND SLEDGE PARTIES.

H.M.S. "Discovery" at Barden Bay.
12th September, 1876.

Sir,

IN compliance with your request, I have the honour to inform you that on the 25th June last, while accompanying Lieutenant Rawson on a search expedition, I met with, on the ice of Newman Bay, the sledge party of Lieutenant Beaumont, and found all (7 in number) affected with scurvy.

The following is an abstract of their condition :—

Lieutenant Beaumont. Suffering from a marked attack of scurvy, his *prominent* symptoms dating from the 23rd June. Worn and debilitated, but yet strong enough to

walk and even drag the sledge (as he was doing when we met), and able to continue in command of the party.

Charles Wm. Paul, A.B. In an advanced stage of acute scurvy, and in a most critical condition. Quite prostrate, bedridden, without suitable nourishment, and desponding. His illness began on the 19th May, and he had been carried on the sledge from the 3rd June. (Reached "Thank God Harbour" at 11.30 p.m. of the 28th June, and died at 5.15 p.m. of the 29th.)

William Jenkins, Carpenter's Mate. Also in an advanced stage of acute scurvy. Unable to rise from his bed, desponding, and in other respects nearly as bad as Paul. Had been ill from the 16th May, and carried on the sledge from the 7th June.

Peter Craig, A.B. Suffering from acute scurvy. Bedridden as the two above mentioned, without suitable nourishment, unable to rise without assistance, and in a critical condition. Ill from the 16th May, and carried on sledge from the 23rd June.

Wilson Dobing, G.R.M.A. Suffering from acute scurvy, accompanied by œdematous inflammation of the left leg Confined to bed, unable to stand upright, and in a state of great general debility. Showed signs of scurvy on the 21st May, and was carried on the sledge from the 23rd June.

Alexander Gray, ice quartermaster. Partially crippled in the left leg, and generally debilitated, but able to eat a fair quantity of the sledging ration, and to walk with the assistance of a stick. Affected with scurvy from the 19th June.

Frank Jones, stoker. Both legs much swollen from scorbutic œdema. Was, however, in good spirits, ate the sledging ration fairly, and walked slowly with the assistance of a stick.

I have further to inform you that on the 7th June, arriving at "Thank God Harbour" in company with Lieutenant Fulford, I met with Lieutenant Rawson's sledge party, whom I found to be in the following condition:—

Lieutenant Wyatt Rawson. In good health.

James Hand, A.B. Dead since the 3rd June, the body exhibiting the characteristic marks of advanced scurvy.

Elijah Rayner, G.R.M.A. In good health.

George Bryant, captain of the maintop. Suffering from a severe attack of scurvy, which rendered him almost quite helpless, and endangered his life. Ill since the 11th May, and unable to walk from the 24th.

Michael Regan, A.B. Partially crippled in legs and back, but in other respects strong. Presenting the usual marks of scurvy. Had been working in the drag ropes up to the 3rd of June.

I have the honour to be, Sir,
Your obedient servant,
R. W. COPPINGER,
Surgeon, R.N.

To Captain H. F. Stephenson, R.N.,
H.M.S. "Discovery."

H.M.S. "Discovery," Discovery Harbour,
7th May, 1876.

MEMO.

(1.) YOU are to proceed to Polaris Bay in command of the party with two ice-boats, that are to be depôted for the return of Lieutenant Beaumont next month.

(2.) On arriving at Hall's Rest the boats must be hauled up well clear of the ice-foot, and then await the arrival of Dr. Coppinger, G. Emmerson, Chief Boatswain's Mate, and ten men with two sledges.

(3.) You will then hand over the command of all the party and sledges to Sub-Lieutenant Conybeare, which will be 31 officers and men, two 8-man sledges, one 5-man sledge, and one 12-man tent, complete, with all its equipment, which must be distributed amongst the sledges.

(4.) Mr. Conybeare will return to the "Discovery" with all dispatch before the ice breaks up in the Channel. You will ascertain that he has sufficient provisions to carry his party over, leaving any surplus he may have in depôt for Lieutenant Beaumont, entering the same in the Book.

(5.) Should you have any doubt about water lanes in mid channel, Mr. Conybeare is to return with the 15-foot ice-boat.

(6.) The 12-man sledge is to be left with the 20-foot ice-boat.

Frank Chatel, Capt. Forecastle. Hans Hendrick, Esquimaux.

(7.) As soon as you are satisfied that this party have fairly started, you will undertake the exploration of Petermann Fiord in dog sledge, accompanied by Dr. Coppinger and the two men named in the margin, returning to Polaris Bay on the 15th June, by which date Lieutenants Beaumont and Rawson may be expected from the North of Greenland, returning to "Discovery" with their party.

(8.) In undertaking the service it is of importance to ascertain whether it affords a practicable route for sledges proceeding towards the East Coast of Greenland, and on every clear day you should attain the highest look-out place possible, sacrificing even distance travelled in advance if necessary.

(9.) Should you have time, I wish you to visit the depôt of 240 rations at Cape Morton, so that we may know that it is safe, and can be relied on by Lieutenant Beaumont during his journey to Mount Washington in July.

(10.) With the able assistance of Dr. Coppinger, I am confident this service will be thoroughly performed, and some satisfactory results obtained. My sincere wishes for your success and safe return with Lieutenant Beaumont next month.

H. F. STEPHENSON,
Captain.

To Lieutenant R. B. Fulford,
H.M.S. "Discovery."

Polaris Bay,
17th May, 1876.

MEMO.

On my leaving this for the "Discovery," I desire you will at once proceed to the south shore of Newman Bay on dog sledge with Dr. Coppinger, and deposit a depôt of 48 rations for Lieutenant Beaumont to return next month.

You will then proceed in the execution of the instructions you have already received. Should you have any doubt about the possibility of Lieutenant Beaumont missing the depôt you have laid out for him, I should like you to meet his party about the 12th of June on this side of Newman Bay.

H. F. STEPHENSON,
Captain.

Lieutenant R. B. Fulford.

H.M.S. "Discovery," Discovery Harbour.

Sir,

I have the honour to inform you that in obedience to your Memo. of 7th May, 1876, I took command of the party consisting of Sub-Lieutenant Conybeare and the 18 men (mentioned in my Journal), and with the 20-foot ice-boat proceeded to Polaris Bay, leaving the ship at 7·50 p.m. on the 7th May. We arrived at the position where Sub-Lieutenant Conybeare had depôted the 15-foot ice-boat at 4 a.m. on the 8th May, and camped there for our first camp. We reached Polaris Bay early on the morning of the 12th May, and hauled both boats up close to the Observatory, when you, Sir, arrived with Mr. Hart (naturalist) and the dog sledge. I have much pleasure in informing you of the assistance rendered me by Sub-Lieutenant Conybeare, who was most zealous in the performance of his duties. The conduct of the men was most satisfactory, all working well and cheerfully the whole time.

On the 17th May I took command of H.M. Sledge "Faith," and accompanied by Dr. Coppinger, F. Chatel, Captain forecastle, and Hans Hendrick, Esquimaux, with 8 dogs, and in obedience to your Memo. of the 17th May, proceeded to Newman Bay with a depôt of 48 rations for Lieutenant Beaumont, and placed it on the west side of a small gully about 40 yards from the ice foot, and which I think is the south-western angle of Newman Bay. Having secured the depôt and left a record for Lieutenant Beaumont, stating I should endeavour to return there on or about the 12th June to render him further assistance, I returned then to Polaris Bay, and arrived there on the 21st May.

On the 22nd May, having provisioned my sledge for 16 days, I started for the exploration of Petermann Fiord.

Taking a straight course from the Observatory for Cape Tyson, we proceeded over a floe of young ice, which for the most part afforded excellent travelling. Cape Tyson, distant 20 miles from Hall's Rest, we passed on the early part of our second journey, and proceeding between it and Offley Island, followed the coast line of the northern side of

the fiord until we attained a distance of 13½ miles from Offley Island. Here we found ourselves at the margin of an ice barrier, which in an undulating precipitous line extended across the fiord. This ice, resembling that of the level part of a glacier, was of a mean height of 25 feet above the water line; its surface was entirely devoid of snow, glassy, with most beautifully tinted blue veins, and having numerous circular holes in it, and in general configuration presented a system of high undulating ridges separated by deep furrows, where we found heavy snow drifts.

In this part of the fiord the glacier ice was connected with the sea ice by an abrupt perpendicular margin, without hummock, hedge, or water cracks; but the sea ice above mentioned was an ordinary old floe which in its turn was connected with the young floe at the mouth of the fiord by a regular hummock hedge.

We advanced our position from here 1½ miles up the fiord, half of which distance was along one of the main furrows of the glacier ice. From this point, owing to our not being prepared for glacier travelling, we were unable to advance our camp. We therefore spent the ensuing three days making walking excursions up the fiord.

Owing, however, to the slippery and uneven nature of the ice and the number of wide fissures and water-cracks which as we progressed up the fiord increased in number, irregularity, and magnitude, we were unable to get further than 6 miles from our camp, *i.e.*, 18½ miles from Offley Island.

From a conspicuous hummock, which we ascended at our furthest point, we carefully observed and noted the conformation of land and ice in view.

The S.W. land of the fiord consists of a bold line of cliffs, through which poured at intervals of 5½, 7½, 20, and 30 miles respectively from Cape Lucie Marie, four ordinary glacier streams. This line of cliffs extended for about 30 miles in a S.S.E. (true) direction from Cape Lucie Marie, when it seemed to end, and here was overlapped by a very distant range of hills, which appeared to encircle a large basin of ice, into which the head of the fiord expanded. This distant land only partially bounded the view of the head of the fiord, as it seemed to cease or was lost to view at a bearing of 261° (mag.) from our look-out point. This, therefore, leaves a blank horizon of 10° in the eastern quarter of the head of the fiord. The N.E. line of cliffs, or those close to us, appeared to come to an abrupt termination about 20 miles from this position, and 39½ miles from Offley Island. This line of cliffs, similar in every respect to those on the other shore, exhibited three ordinary glaciers, whose snouts, very much broken, appeared to protrude directly on to the main ice of the fiord. The cliffs on this side, from which our camp was only about 200 yards were 1100 feet high, perpendicular, and in some places overhanging, were the scene of frequent avalanches from the ice cap above.

Having now satisfied myself that further efforts to advance my position on this side of the fiord would be useless, I determined on trying the S.W. shore, accordingly crossing the floe above the glacier ice, we reached the S.W. side on 31st May, and camped close to the mouth of the first glacier. From here we endeavoured to ascend one of the neighbouring cliffs, in order to obtain an extended view, but were unsuccessful. We then proceeded down this shore as far as the sea floe admitted, but found our progress checked by the usual barrier of glacier ice, which came directly into the face of the cliffs 12 miles from Cape Lucie Marie, and for travelling purposes the glacier ice on this shore was even more unsuited than on the N.E. shore.

It was evident that nothing further in the way of exploration could be done; but enough had been seen to convince me that the fiord, far from being a strait or channel. was simply the bed of an immense glacier, whose main source was probably in the eastern quarter of the head of the fiord, and hid from view.

The influence of the tributary streams seemed to be almost confined to the formation of crevasses in the main ice.

On 2nd June I visited the depôt at Cape Morton, and found it to be in good condition; one bag of dog biscuit had been moved about ten yards from the depôt, but no tracks were to be seen.

On 3rd June commenced our return journey, calling at Offley Island, where I left a record, and arrived at Hall's Rest early on the 7th June, where we met Lieutenant W. Rawson and his party. *Not printed.*

On 22nd June Lieutenant Rawson, accompanied by Dr. Coppinger and Hans Hendrek, with the dog sledge, left to meet Lieutenant Beaumont and his party.

At midnight of the 28th June, Dr. Coppinger, with Hans Hendrick, arrived, bringing on the sledge Will Jenkins, carpenter's mate, and Charles W. Paul, A.B., both very ill with scurvy. On the following day Paul, who had been rapidly sinking, died at 5.15 p.m.

I sent by Lieutenant Beaumont's orders M. Regan, A.B., E. Rayner, Gunner, R.M.A.,

with Hans and the dogs, to render his (Lieutenant Beaumont's) party further assistance.

Lieutenant Beaumont and the remainder of his party arrived at Hall's Rest on 1st July.

On the 12th July I received orders from Lieutenant Beaumont to take F. Chatel, Captain forecastle, M. Regan, A.B., and with the dogs cross over to the ship. I left Hall's Rest on the evening of the 12th July. We found the ice in many places quite rotten, and on reaching the west land found most of the ice on the move near the shore. We succeeded, however, with some little difficulty in landing in Watercourse Bay, and proceeded from there overland to the ship, where I arrived at 8 a.m. on the 15th July. I take this opportunity of thanking Dr. Coppinger for his cordial co-operation and the most able manner in which he assisted me during our exploration of Petermann Fiord, and always in the most generous way placing his notes at my disposal.

Hans Hendrick (Esquimaux) I beg leave to bring to your most favourable consideration. His untiring energy, his ability in managing the dogs, and his unceasing efforts to procure game merits the highest approbation.

I beg leave to enclose a copy of Lieutenant Beaumont's orders to me, my chart of Petermann Fiord, and a copy of my sledging journal.

I have the honour to be, Sir,
Your obedient Servant,
REGINALD B. FULFORD,
Lieutenant.

Captain H. F. Stephenson, R.N.,
H.M.S. "Discovery."

HALL'S REST, POLARIS BAY,
12*th July*, 1876.

Sir,

Frank Chatel, Cap. F.C.
Michael Regan, A.B.

IT being very desirable that Captain Stephenson, of H.M.S. "Discovery," should be informed of the state of the party at this place, and the reason of its inability to return to the ship, you are to take the two men named in the margin, and with the 5-man sledge and the eight dogs, endeavour to reach Discovery Harbour, your party being provisioned for four days.

You are no doubt fully aware that to cross so broad a channel at this time of the year without a boat is contrary to the advice and counsel which we have received; but the season appears so exceptional, no portion of the ice in the straits having yet moved as far as can be seen, that I believe the occasion to warrant the attempt.

The effort must, however, be considered as tentative, and I rely on your judgment and prudence, as well as your knowledge of the road, to turn back and return here should the travelling in your opinion become too hazardous.

In the event of your meeting a party from the ship on its way to Polaris Bay, you are to show the officer in charge of the party your orders, explain to him the nature of the communication you are bearing to Captain Stephenson, and leave him to decide whether to proceed on his way, or turn back with you.

You will be able to afford such information to Captain Stephenson as my letter does not contain; and if you are able to do so we shall be very glad to be made aware of your safe arrival by flashing signal from Distant Cape. Wishing you a speedy and safe journey,

I remain, Sir,
Your obedient Servant,
L. A. BEAUMONT,
Lieutenant, R.N.,
Senior Officer at Polaris Bay.

Lieutenant R. B. Fulford,
H.M.S. "Discovery."

7*th May*, 1876.

7.50 p.m.—Accompanied by Sub Lieutenant Conybeare and the 18 below-mentioned men I got under way from the ship with the 20-foot ice-boat on the 12-man sledge for Polaris Bay.

Frank Chatel, Captain Forecastle.
John E. Smith, Sailmaker.
William Ward, Armourer.
Ed. C. Eddy, Chief Carpenter's Mate.
George Bunyan, Gunner's Mate.
David Stewart, Captain Foretop.
Thomas Simmonds, Captain Forecastle.
Daniel Girard. A.B.
John S. Saggers, A.B.
H. W. Edwards, A.B.
James Thornback, A.B.
R. W. Hitchcock, A.B.
Samuel Bulley, Stoker.
William R. Sweet, Stoker.
Henry Winsor, Carpenter's Crew.
W. C. Wellington, Sergeant, R.M.A.
W. Waller, Private R.M.L.I.
John Murray, Private, R.M.L.I.

11 p.m.—Arrived at Conybeare's first camp about $\frac{3}{4}$ mile from Distant Cape, and where the 8-man sledge had been depôted. Halted for lunch.

Relashed the boat and shifted the gear from the 8-man sledge into the boat.

8th May.

0.15 a.m.—Proceeded. Eddy rather done up in both feet; walked ahead.

4.0 p.m.—Arrived at Conybeare's No. 3 camp where the 15 ft. ice boat had been depôted. Halted and camped. The travelling in some parts had been very heavy, having standing pulls though such a numerous crew.

6 p.m.—Called cook. Placed the 15 ft. ice boat on the 8-man sledge. 8·30 p.m.—Got under way, Conybeare taking command of the 12-man sledge "Endeavour." 10 p.m. cut our way through some heavy hummocks; Conybeare most energetic with a pickaxe. Prayers.

11.30 p.m.—Halted for lunch.

Travelled 12′.
Made good 10′.
6 a.m.
Calm b. c. m.

9th May.

0.35 a.m.—The boats having been relashed, proceeded. We now had a few miles of excellent travelling on young ice.

4.30 a.m.—Halted; camped. 6 p.m.—Called cook.

8.20 p.m.—Got under way. A nasty cold wind blowing from S.S.W. (true) 3.4. 11.30 p.m.—Halted for lunch.

Travelled 11′.
Made good 9′.
5 a.m.
Calm b. c.

10th May.

0.30 a.m.—Proceeded. 4.30 a.m.—Camped. The travelling to day has been pretty good, occasionally we had to double man the sledge and get through the nips singly.

6 p.m.—Called cook. 8.20 p.m.—Got under way. Prayers. 11.30 p.m.—Halted for lunch.

Travelled 8′.
Made good 6·5′.
6 a.m.
S.S.W. 3·4 b. c. m.

11th May.

0.30 a.m.—Proceeded. 4.30 a.m.—Camped about 3 miles from Hall's Rest; could make out the Observatory quite distinctly.

A cold wind all day, and the travelling pretty heavy, frequently having to double man the sledges. Found myself a little snow blind; used the snow goggles.

6 p.m.—Called cook. 8.30 p.m.—Got under way. Snowing fast, a breeze from the S.S.W. and weather very thick.

Heavy travelling, having to cut our way through the hummocks; double manning the sledges the whole time. 11.30 p.m., the 12-man sledge "Endeavour" broke down; 3 of the uprights on one side carrying away. Pitched tent for lunch and relashed the sledge. Only 200 yards from the beach, so went ahead to select a place to cut our way through the shore hummocks.

Travelled 7′.
Made good 5′.
6 a.m.
S.S.W. 3—4 o m.
8 p.m.
S.S.W. 2—3 o. s.

12th May.

0.30 a.m.—Unloaded the sledges, and brought the boats in singly on the 8 man sledge. Just as we had landed the 20 ft. ice boat and hauled her up near the Observatory, we sighted the Captain accompanied by Hart, and the dog-sledge making their way through the shore hummocks.

Travelled 3′.
Made good 2·5.
4 a.m.
Calm c.

2.45 a.m.—We all camped on the beach just below the Observatory. Issued preserved meat in lieu of pemmican, which all hands pronounced to be excellent.

Midnight. N.N.E. 7—8 c.

6.15 p.m.—Called cook. 8.30 p.m.—Prayers. Blowing hard from the N.N.E. (true). Snow drifting tremendously. Party employed erecting tablet to the memory of Captain Hall. Inspecting the depôt, &c.

Building snow walls round the tents, which makes our encampment very snug.

13th May.

N.N.E. 8—10 c. q.

6 p.m.—Called cook. 8 p.m. prayers. Taking stock of the depôt. The Captain and I placed the American flag over Captain Hall's grave. Blowing fresh till midnight, and then it came on a regular gale, snow drifting by acres off Cape Lupton. Repairing the 12-man sledge.

14th May.

Hardly able to move out of our tents on account of drifting snow, so we turned in early.

N.N.E. 7—9 c. q.

6 p.m.—Called cook. 8.30 p.m.—Read prayers.

Midnight. Blowing as hard as ever, and as much snow drifting.

15th May.

N.N.E. 7—9 c. q.

4.30 a.m.—Dinner. 7 p.m.—Called cook. 7.30 p.m.—Coppinger and his party turned up; the first we knew of their presence was by hearing them cheer, when of course we all turned out to welcome them, and were delighted to hear they were all well, and had left Beaumont the same on 5th May, but with very heavy travelling before him.

Coppinger brought with him 9 men, an 8- and a 5-man sledge. Midnight. Still blowing hard.

16th May.

N.N.E. 7—9 c. q.

Received orders from the Captain to lay out a depôt of 48 rations on the south shore of Newman Bay for Lieutenant Beaumont. Conybeare preparing this depôt by the Captain's order.

2.0 p.m.—Called cook.

17th May.

Noon, calm b. c. Travelled 7′. Made good 4·5′.

The wind lulled at 3 a.m., and the sun came out quite warm. Preparing for starting.

8.0 a.m.—The Captain accompanied by Sub-Lieutenant Conybeare and Mr. Hart (naturalist) and 27 men, with 2 eight man and 1 five man sledge left for the ship.

Not printed

Placed the record left by the Captain, adding to it the time of his departure and number of his party. 20 ft. magnetic north of Captain Hall's grave.

My party now consists of Coppinger, F. Chatel, Captain Forecastle, and Hans, eight dogs with the 5-man sledge "Faith."

Got under way for Newman Bay at 10 a.m., very warm, and travelling hard through the deep snow.

1 p.m.—Halted for lunch. 2·50 p.m.—Proceeded.

8 p.m.—Camped. All, I think, dogs included, thoroughly tired. The snow on this plain so soft and deep we had to assist the dogs by dragging as well.

18th May.

Travelled 7·5′. Made good 6′. 10 a.m., calm b. c. + 16°.

7.30 a.m.—Called cook. Beautiful day. Got under way at 10.40 a.m.

2.15 p.m.—Halted for lunch. 4.15 p.m.—Proceeded. 9 p.m.—Camped. Heavy travelling all day. Our camp this evening about $\frac{1}{4}$ mile from the icefoot of Newman Bay.

19th May.

Noon. North 3—4. 29·87 b. c. + 15°.

11.30 a.m.—Called cook. 2 p.m.—Got under way and laid out the depôt of 48 rations for Beaumont on the west side of this gully (which is I think the south-eastern angle of Newman Bay) and 40 yards from the ice foot on a small knoll, and marked it with a flag, leaving a record to the effect I should endeavour to render him further assistance by coming there on or about 12th June.

Having secured the depôt we had lunch, and at 7.45 p.m. commenced our return ourney to Hall's Rest, made sail, which much assisted the dogs.

6 p.m.
North 4—5.
+ 15°.

20th May.

1.45 a.m.—Camped. Wind fell to a calm.
3 p.m.—Called cook. 5.50 p.m.—Got under way.
9.50 p.m.—Halted for lunch. Weather looking very unsettled. 11·0 p.m.—Sent Chatel and Hans on with the sledge to camp on the ice foot near the Observatory.

Travelled 6′.
Made good 5′.
4 a.m., calm b. c.
29·69
11°

21st May.

2.30 a.m.—Camped at Hall's Rest. On our way over the plain this time, I noticed the snow had melted a good deal in some places, and was beginning to get quite slushy.
6 p.m.—Called cook. We had a little snow.
Got my provisions ready. Took the flag from Captain Hall's grave and placed it n the Observatory.
Coppinger went walking up the near hills and brought back a hare.
Coppinger and Chatel both showing symptoms of scurvy; by Coppinger's advice I took in a stock of lime juice.

11 p.m.
North 1 c.
29·67
11°

Travelled 6′.
Made good 5′.
10 p.m.
North 3—4. b. c.
30·02
20°

22nd May.

6 p.m.—Called cook. I intended taking sights, but no sun appeared. 9.20 p.m.—Got under way for Petermann Fiord. 11.15 p.m.—Wood of starboard runner broke between the first upright and the horns of the fore part of the sledge: pitched the tent; made an upright out of the pemmican board. Reversed the sledge, shifting the drag ropes and back.

North 2—3.
o. s. 30·17
21°

23rd May.

This work having been completed and lashings secured, went to lunch at 1.20 a.m., uncommonly glad of some warm tea; lashing and unlashing with a nice cool northerly breeze being hardly a warm occupation.
2.30 a.m.—Proceeded. Travelling very good.
7.10 a.m.—Camped about 2 miles or $2\frac{1}{2}$ miles to the north (true) of Cape Tyson.
7.30 p.m.—Called cook. 10·40 p.m.—Got under way. Good heavy squalls from the north (true). The ice here like glass, and as we had a strong fair breeze it was as much as we could do to stand.
11.10 p.m.—The sledge slewing suddenly in a squall capsized. Unloaded and righted sledge.
11.30 p.m.—Proceeded. Midnight.—Rounding Cape Tyson, blowing now hard from the northward.

2 a.m.
North 2—4.
o. 30·22
19°

Travelled 15′.
Made good 14′.
8 p.m.
North 4—7.
b. c. q. 29·95
16°

24th May.

1.30 a.m.—Rounded Cape Tyson. 2·30 a.m.—Halted for lunch off a small island inside Offley Island. $3\frac{1}{4}$ miles from Cape Tyson. Took a round of angles from the top of this small island.
Relashed the sledge.
5 a.m.—Proceeded. Shaped a course down the Fiord, keeping close to the N.E. line of cliffs which run in a S.S.E. (true) direction.
7.25 a.m.—Came on an old floe.
8 a.m.—Camped on an old floe about $\frac{1}{2}$ mile from the cliffs, which were quite perpendicular, about 1,100 feet high, and in some places overhanging.
Snow drifting a good deal and blowing hard.
7.40 p.m.—Called cook. The wind had lulled and shifted to the southward (true) during our sleeping time. 10·45 p.m.—Coppinger and I went to explore the wonderful looking ice which we were surrounded with.

4 a.m.
North 6—8.
b. c. q. 29·71
24°

9.30 a.m.
North 7—8.
b. c. q. 29·65
22°

Travelled 13·5′.
Made good 13·5′.
10.30 p.m.
S.S.E. 2·4 b. c.
19°

25th May.

1 a.m.—Coppinger and I halted about 200 or 300 yards from the cliffs, which from their tops resembling so much the fluting of an organ, I named the Organ Cliffs. Took a round of angles. The ice here was of a mean height of 25 feet above the water level, its surface was entirely devoid of snow, glassy, and with most beautifully tinted blue vertical veins; and had numerous small circular holes in it; we also constantly

3.30 a.m
South 1. b. c.
29·82
19°

Travelled 3'.
Made good 2·5'.
8 p.m.
Calm b. c.
29·77

heard sharp cracks in the ice, in fact this ice had every characteristic of glacier ice. We could trace land at the head of the Fiord from the S.W. line of cliffs to a bearing of 261° (Mag.). We also observed 3 glacier streams flowing through the cliffs on this side (east side) and 4 on the other of the Fiord. Arrived back in camp at 3·30 a.m. Lunched.

5 a.m.—Got under way and brought the sledge up one of the main furrows of this glacier ice, and camped about 1½ miles from our old camp, and from Offley Island, about 200 yards from the cliffs.

Got another bearing at 6 p.m. of the land at the head of the Fiord, and made it out quite distinctly to 260° 30′ (mag.)

8 a.m.—Took a set of sights for longitude.

Noon.—Got a meridian altitude which made our latitude 81° 5′ N.

8.20 p.m.—Called cook. During the night we found the tent very warm, 68° Fahr. being noted.

10.45 a.m.—Coppinger and I went away exploring in a S.S.E. (true) direction to find a lead to advance our sledge up the Fiord.

26th May.

8 a.m. Calm c.
29·77
21°

8 p.m.
Calm c. s.
29·65
26°

2.30 a.m.—Halted, and went on the top of a high hummock and got a round of compass angles. Had a very good view, but could see no more land than yesterday. We were only about 2½ miles from our camp and had very difficult walking on top of this glacier ice, it being as smooth as glass, and undulating. On our way we had to cross two streams of water which lay in an E. and W. direction (that is at right angles to the axis of the Fiord), through the centre of large basins or immense crevasses in this wonderful ice. Returned to camp at 6.30 a.m., having selected a line of exploration for to-morrow, as I have made up my mind it will be useless to attempt trying to advance our camp. We found on our return Hans preparing for a seal hunt, he during our absence having seen three or four seals in the water close under the cliffs. 8 a.m. Dinner. Looking very much like snow. 1 p.m. Hans returned unsuccessful, but brought in three dovekies.

7.40 p.m.—Called cook. Snowing fast and very thick, so no use in exploring to day.

27th May.

4 a.m.
N.N.W. 2—3.
c. m. 29·80
20°

10 p.m.
South 1—2.
c. m. 29·78
25°

3 a.m.—Lunch. 3.30 a.m. Weather clearing, but thick to the southward, and a breeze springing up from the N.N.W. (true) is making the snow drift in great quantities. I am glad of being able to rest to-day as I gave my foot rather a twist down a small fissure in the ice yesterday.

8.30 a.m.—Dinner. 6.30 p.m. Called cook.

Weather is so fearfully thick consider it useless attempting any exploration, so shall hold on here another day.

28th May.

4 a.m.
Calm.
c. m. 29·75
35°

10 p.m.
N.N.W. 2—3.
c. m. 29·48
24°

4 a.m.—Got a few sextant angles.

Coppinger shot three dovekies. 9 a.m.—Dinner.

Weather still very thick. Hans went away again after the seals, and returned at 1 p.m. reporting having shot an usuk seal. With the sledge and dogs got it into camp. It is a great boon getting this addition to our usual provisions, and also for the dogs who, though they eat pemmican, evidently prefer seal meat.

Had seal for dinner, which was excellent.

6.30 p.m.—Called cook. Dull evening, but determined to try for the first glacier on this side. Equipped with Hans' spear and 7 feet of line, Coppinger and I started at 10.30 p.m.

Weather clearing a little.

29th May.

10·30 a.m.
N.N.W. 2—3.
b. c. m. 29·56
21°

3 a.m.—Halted, unable to proceed, our progress being checked by a large crevasse running at right angles to our course from 70 to 90 feet broad, and the ice at the bottom appeared quite rotten; there was a stream of water running through the centre 5 or 6 feet wide; both sides appeared almost perpendicular, and, though we had a good

ook round, we could find no way down, and even if we had I question if we could have rossed. We now appeared to be about 30 feet above the water level and 1 mile or 1½ niles from the glacier which was to the S.E. of us, and about 6 miles from our camp.

We here had lunch and got a round of compass angles. Coppinger while waiting ere nearly came to grief down a small crevasse, but saved himself by spreading out his rms, and with a little assistance from the line which I twisted more round his neck than nywhere else, he scrambled out half choked by my zealous efforts. This crevasse ppeared very deep, and we were unable to see the bottom, and most fortunately no vider, or else Coppinger would have gone down for a certainty. The weather now ecame threatening, heavy clouds coming off the cliffs and drifting to the N.N.W. (true) hough the wind we felt was from that direction.

7 p.m.
Calm.
b. 29·58
19°

We now commenced our retreat to camp. On our way I think we crossed four asins or crevasses in this ice, and five or six narrow streams of water.

We endeavoured to measure the depth of one of the narrow crevasses, and made t 23 feet, when we came on soft snow and had not weight enough to sink into or through t. We also saw several avalanches from the ice cap on the cliffs.

We arrived in camp at 8 a.m., and had seal for dinner which was very good.

I tried by means of sextant angles of the top of the cliffs to a mark on the glacier ce, if there was vertical motion in this ice and found the angle to alter at 9-hour intervals; by this I imagine there is a tidal movement here.

Got a meridian altitude at noon which makes our latitude 81° 3′ N.

6.45 p.m.—Called cook. Intended having another look out from a high hummock about 2 miles from here, but the weather was too thick.

10.15 p.m.—Got under way with the remains of seal for the sledge, and, having chosen a place to lunch, sent the sledge back for the tent and gear.

30*th May.*

While waiting for the sledge Coppinger and I walked in towards the Organ Cliffs and tried to land, but found a stream of water close into the cliffs, so were unable. The sledge turned up at 3.15 a.m., so we had lunch; after which we sent the sledge on with Hans and Chatel to camp on the north side of the glacier ice, and which bore from our yesterday's camp W.N.W. (true) 3 miles to 4 miles. Coppinger and I tried to explore a lead in the glacier ice (N. side) but found it impracticable for the sledge and also for walking, being full of crevasses, though walking with the utmost caution, feeling every step with a pole we several times were nearly let in.

8 a. m.
Calm b. c. m.
29·89
15°

We returned to camp at 7.30 a.m., having been quite convinced there was no road that way.

8.30 a.m.—Supper. Chatel not well to-day.

6.30 p.m.—Called cook. 3.50 p.m. Coppinger went with Hans and the dogs to depôt the seal.

Breezing up from the N.N.E. (true).

Midnight.
N.E. 7—8.
b. c. q. 29·89
19°

31*st May.*

2.50 a.m.—Having packed the sledge proceeded shaping course for No. 1 glacier on the west shore of the Fiord. 6 p.m. We reached the west shore close to the glacier and landed walking to its snout. It was a good deal broken up and had numerous crevasses some distance up, and in some places nearly to the junction of the two legs which run down from the hills at different angles, the southernmost one at the steepest gradient. We then camped on the floe to the southward of the glacier, and about 600 yards from the shore.

Travelled 13′.
Made good 10′.
11 a.m.
North 4—5.
b. c. 29·67
12°

Got a meridian altitude of the sun at noon which made our latitude 81° 2′ 40″ N.

8 p.m.—Called cook. 9 a.m.—Weather fine and clear, but blowing fresh from the northward.

8 p.m.
North 4—6 b. c.

11 p.m.—Coppinger, Hans, and I started for the hill on the south side of the glacier thinking we might be able to climb it.

1*st June.*

We were unable, however, to reach the summit, as when we had got up about 1,300 feet we found our road almost perpendicular, so returned to camp, which we reached at 3.30 a.m. After lunch we started for the second glacier which is about 2½ miles from the first; its snout was very precipitous. Reached the camp again at 7.30 a.m.; weather very thick and snowing fast.

3·30 a.m.
North 3—5.
c. q. s. 29.36.
21°

8 p.m.
North 6—7.
b. c. q. 29·36
21°

7 p.m.—Called cook. 9 p.m.—Got a round of angles.

Coppinger and I went with Hans and the dogs to the glacier ice. A fresh breeze and a good deal of snow drifting.

2nd June.

8 a.m.
North 2—4.
c. s. 29·36
25°

Tried to get a view down the Fiord, and, with a little difficulty, got on the top of a hummock for that purpose; as there was a good deal of snow drifting we had a very poor view.

About 5 miles from the camp, where the young floe meets the glacier ice, there is an unmistakeable tidal crack, whereas on the other shore no cracks are to be seen.

We consider now, from what we have seen of both coasts, that they are exactly similar in physical construction; their geological formation appear the same, both are snow-capped, and have glaciers of about similar form and size.

9 p.m.
North 3—4.
o. 29·55
30°

7 a.m.—Returned to camp. Got a round of sextant and compass-angles, also time-sights.

7 p.m.—Called cook. 10 p.m.—With Hans and the dogs I left the camp to visit the depôt at Cape Morton. 10.30 p.m.—Snowing fast and very thick.

3rd June.

8.30 a.m.
North 2—3.
c. s. 29·64
32°

2 a.m.—Arrived at the depôt, which appeared to be all right; one bag of dog-biscuit had been moved about 10 yards, but not damaged; no signs of any tracks. Weather still very thick.

7.30 a.m.—Arrived in camp. I never saw the dogs go so well before, we must have been over quite 34 miles. Saw two gulls off Cape Lucie Marie.

9 p.m.
North 3—4.
o. 29·61
26°

8 p.m.—Called cook. 10.45 p.m.—Sent sledge with Hans and Chatel on to Offley Island to camp.

4th June.

Travelled 17′.
Made good 15′.
10 a.m.
Calm b. c.
29·79
25°

5.30 a.m.—Coppinger and I arrived at our camp on the south side of Offley Island. The travelling on the floe rather stiff in some places, the snow being very soft.

After lunch Coppinger and I went to the top of the island. Got a round of sextant and compass-angles. Coppinger found a cairn where I had been taking angles, but no record.

10 p.m., calm.
b. c. 29·80
22°

10.8 a.m.—Dinner. Got a meridian altitude at noon; latitude by it 81° 15′ 29″ N.

10 p.m.—Called cook. A most beautiful clear night, and a charming warm sun.

5th June.

8 a.m.
North 3—4.
b. c. 29·80
20°

0.10 a.m.—Sent Chatel and Hans with the dogs to depôt our seal at Cape Tyson.

Coppinger and I walked round the island looking for the Esquimaux Huts (Igluperk-suit) reported by Hans to have been found here by Polaris, but saw no signs of them.

Not Printed.

Coppinger shot two dovekies, and we saw one or two seals. Returned to camp at 4.30 a.m. Wrote a record, in addition to the one given me by the Captain, and placed it in the cairn at the summit of the island. I stated in my record where we had been, and also that no water was to be seen anywhere in the channel.

10 p.m.
North 4—6.
b. c. q. 29·79
28°

Chatel and Hans returned, the latter having shot another seal.

7 p.m.—Called cook. Fearfully hot all night in the tent, and all awoke with head-aches.

6th June.

Travelled 6′.
Made good 5 .
7 a.m.
N.N.E. 6—8.
b. c. q. 29·79
26°

1.45 a.m.—Got under way. Blowing fresh from the N.N.E. (true). Walked along the shore with Coppinger and sent the sledge on. Came across several tide cracks.

5.45 a.m.—Camped about 2¼ miles to the north of Cape Tyson. Blowing hard from the N.N.E. (true) with squalls. We saw a good many seals while on the march.

8.0, calm.
b. c. 29·85
29°

7 p.m.—Called cook. Almost calm, light airs from the south.

10 p.m.—Got under way. Sent sledge on to the Observatory at Hall's Rest. Snow soft.

7th June.

At 6.30 a.m., to my intense astonishment, I saw Rawson coming towards me. He had been sent back from Beaumont's party with a man sick with scurvy.

7 a.m.—Arrived in camp at Hall's Rest.

2.30 p.m.—Dinner.

4 p.m.—It came on to blow from the N.N.E. (true).

Travelled 13·5′.
Made good 12′.
Noon.
N.E. 3—6.
b. c. q. 29·76

33′

12th July.

Getting my sledge ready. Received my instructions from Lieutenant Beaumont, and letters.

9.45 p.m.—Got under way from the camp. Rawson, Coppinger, and Hans lent us a hand to get on the first large floe off Cape Lupton; we parted company at 11.45 p.m., they having been of much assistance to us.

13th July.

4 a.m.—Lunch. 4.45 am.—Proceeded. 9.30 a.m.—As the sledge wanted relashing, camped.

Travelled 14′.
Made good 11′.
10 a.m.
East 2—3.
b. c. 29·65.

Bearing of Cape Lupton	185°
„ „ Tyson	256

The travelling was very wet, and we had a good deal of difficulty getting the dogs over some parts, which was half snow and half water, about 3 feet deep. We all had a good deal of cramp from the wetting.

7 p. m.
Calm.
b. c. 29·51.

6.45 p.m.—Called cook. 10.40 p.m.—Got under way.

14th July.

9 a.m.—Halted for lunch. 4.25 a.m.—Proceeded. The young ice most treacherous, with numbers of holes in it. At 8.30 a.m. Regan fell through and got a fearful ducking, and as he was very cold, I camped.

Travelled 14′.
Made good 11½′.
11 a.m.
N.N.E. 1—3.
c. 29·64.

We felt the constant wetting a good deal to-day, getting a good deal of cramp from it.

8 p.m.—Called cook. 10.50 p.m.—Got under way.

15th July.

About 1 a.m. came on a lane of water about 2 miles from Distant Cape, and some of the ice there on the move.

2 a.m.—After a good deal of difficulty, succeeded in landing in Water Course Bay, and very thankful we were to have arrived all right; both men and dogs a good deal done.

Proceeded after lunch for the cairn on Cairn Hill, having depôted my gear at Distant Cape.

We found a look-out party at the Cairn, who communicated our arrival with the ship, where we arrived in due course at 8 a.m.

R. B. FULFORD.

Compass and Sextant Angles.

24th May, 1876.

△ Offley Island No. 2.

Offley Point. Zero of Sextant Angles.

No. 4 Glacier, West shore	2°	35′
3 „ „	4	40
2 „ „	21	40
1 „ „	32	40
Cape Morton	78	20
Centre Joe Island	89	28
← Offley Island No. 1	110	5

Compass Bearings.

← Cape Tyson	78°	30′
⊙ Joe Island	358	0

25th May.

4 a.m. △ The Camp.

Compass Bearings.

	Extreme of East land	240° 30′
	Left extreme of West land	261 30
	No. 4 Glacier, West shore	272 30
	3 „ „	282 30
	2 „ „	336 0
	1 „ „	351 0
	⊙ of Offley Island	72 0
	Cape Lucie Marie	19 0
	Joe Island	25 30
Noon.	Meridian altitude of Sun's L.L.	59° 37′ 30″
	Index error	— 4 30
	Latitude	81 5 N
6 p.m.	Left extreme of West land bottom of Fiord	250 30

Compass and Sextant Angles.

26th May, 1876.

2.30 a.m. △ A hummock 3·5′ S., 77 W. (mag.) from Camp.

Compass Bearings.

Extreme of East land	240°
„ land at bottom of Fiord ..	251
Cape Coppinger	266
Cape Bemerton	270
No. 4 Glacier, West land	278½
3 „ „	286
2 „ „	355
1 „ „	7
Cape Lucie Marie	25
Joe Island	31
No. 1 Glacier, East land	220
2 „ „	231½
3 „ „	232
Our camp in Lat. 81° 4′ N.	77

28th May, 1876.

△ Camp, Lat. 81° 4′ N.

Sextant Angles.

Zero No. 1 Glacier, E. shore.

← of West land	10° 10′
No. 4 Glacier, West land	41 44
3 „ „	47 13
2 „ „	104 33
1 „ „	120 10

No. 1 Glacier (W. land) zero.

Cape Lucie Marie	21 40

Compass Bearings from above position.

No. 1 Glacier, East land	236 30
Extreme of East land	243 30

Compass and Sextant Angles.

No. 4 Glacier West land	280°
3 „ „	285
2 „ „	344
1 „ „	357

29th May.

Noon.	Mer. alt. of Sun's L.L.	60° 56′
	I.E.	— 4′ 30

Lat. 81° 3′ N.

31st May.

Noon.	Mer. alt. Sun's L.L.	61° 35′
	I.E.	— 5

Lat. 81° 2′ 40″ N. No. 1 Glacier, West land.

Compass Bearings.

△ Camp at No. 1 Glacier, West Land.

Cape Lupton	104°
Beginning of Organ Cliffs	156½
No. 1 Glacier, East Land..	202½
2 „ „	212
3 „ „ (Cape Fulford) ..	216
Extremity of East land	234
Cape Lucie Marie	50½
Cape Tyson	112½

Sextant Angles from same position.

Cape Lupton	Zero
Commencement of Organ Cliffs	44° 10′
No. 1 Glacier, East land	90
2 „ „	99 30
3 „ „	104

Compass and Sextant Angles.

Extremity of East land (Cape Fulford)	121°
Angle between Cape Lucie Marie and Lupton ..	64½

4th June.

△ Offley Island.

	Compass Bearings.	Sextant Angles.
Low Cape of Organ Cliffs	254°	Zero.
Cape Coppinger	263	9° 30′
Cape Bemerton	266	12 20
No. 4 Glacier, West land	268½	15 20
3 „ „	271	16
2 „ „	284½	31 30
1 „ „	295½	41 10
Cape Lucie Marie	319½	66 30
Cape Morton	343	88 30
Joe Island	355	99 30
Bellot Island	46	
St. Patrick Bay (N. headland)	64	
Cape Beechy	81	
Cape Frederick VII	90	
Cape Lupton	97	
Hall's Rest	100½	

Noon.	Obs. alt. Sun's L.L. ..	62° 7′
	I.E.	— 5

Lat. 81° 15′ 29″ N.

DR. R. W. COPPINGER'S REPORT ON PETERMANN FIORD, MAY AND JUNE, 1876.

H.M.S. "Discovery," at Barden Bay,
Sir, 12*th September*, 1876.

In compliance with your Order of August, 1876, that I should furnish you with a Report on the Petermann Fiord, I have the honour to inform you that the party under the command of Lieutenant Fulford, to which I was attached, started from Thank God Harbour on the 22nd May, and on the second journey rounded Cape Tyson and entered the fiord. On leaving Cape Tyson and Offley Island, which were considered to mark the north-east side of the mouth of the fiord, we saw some miles before us an abrupt, precipitous wall of ice, extending in an irregularly wavy but unbroken line from shore to shore. When we had got about 10 miles S.S.E. of Offley Island, the young floe on which we had been travelling terminated, but was connected through the intervention of a hummock hedge with an old glassy-hummocked floe, over which we proceeded until we reached the margin of the heavy ice above-mentioned.

Here at 11½ miles S.S.E. of Offley Island, and about 1,000 yards from the high precipitous cliffs which form the N.E. shore of the fiord, we made our second camp (see plan). The old floe on which we camped was rigidly connected with the heavy ice; in some places the precipitous and cleanly-fractured face of the latter meeting the old floe at a sharp right angle. On examining the surface of the heavy ice, we found it to be totally different in character from that of a floe. It was of glassy smoothness, and so slippery and uneven that walking (in the ordinary sense of the word) was impossible, and to get along at all it was frequently necessary to resort to crawling. The surface was thickly studded with circular pits, about six inches deep, and from 1 to 18 inches in diameter, usually containing a little snow and some dark powder, of which I obtained specimens. In general configuration the surface of this ice was arranged for the most part in undulating ridges, extending obliquely down the fiord in a N. and S. direction; but as a rule interrupted by wide fissures and faults, so that few of the ridges were directly continuous for a greater length than two miles. The height from crest to furrow was usually about 30 feet, and the slope so steep and slippery that in many places it was quite impossible to cross the ridges except by cutting steps, or by some such contrivance. The furrows, as a rule, had a certain amount of snow bed, and so far as they went afforded good travelling; but where the ice was devoid of snow, not even a dog could obtain foothold. It is not to be understood from the above that the ice-surface was everywhere disposed in these great ridges and furrows; for, on the contrary, there were many patches from five to six acres in extent of bare ice exhibiting an irregularly undulating surface from 30 to 35 feet above the water level, and intersected by narrow fissures.

Having explored all the ice within a day's journey of this camp, and ascertained that by keeping for three-quarters of a mile to the old *floe*, which sent a tongue (as shown in the plan) under the N.E. cliffs, and that by taking to a furrow of the glacier ice for another three-quarters of a mile we could advance our position, we packed up and proceeded.

Our third camp, then, reached on the 25th May was 13 miles from Offley Island and 200 yards from the N.E. line of cliffs. Here Lieutenant Fulford obtained "sights" for latitude. From 4 miles to the northward of this position, these cliffs presented a vertical face about 1,100 feet high, composed of alternating bands of light-grey and dark slate-coloured fossiliferous limestone rock, and, the cliffs from abreast our third camp, were surmounted by an ice-cap, whose blue jagged edge lying flush with the face of cliffs, we estimated at a thickness of 40 feet. The cliffs of the S.W. shore of the fiord presented a similar ice-cap, but of greater extent, as it began about 10 miles to the southward of Cape Lucie Marie, *i.e.*, on the south side of the first glacier, and was continuous to the southward as far as the cliffs were seen to extend.

From both sides the ice seemed to be flowing steadily over the cliffs, as evidenced by frequent avalanches in which great masses of the ice-cap projecting over became detached, and carrying with them in their descent masses of rock torn from the face of the cliffs, came thundering down to the floe, marking their flight by dense clouds of snow, and accompanied by a long series of echoes, creating a most grand and imposing effect. Some idea of the force with which these avalanches came down may be gathered from the fact that large stones were sometimes projected across the floe to a distance of 80 yards from the foot of the cliffs.

At this third camp, the furthest position to which with our disabled sledge and unsuitable equipments we could move our baggage, we spent three days devoted to

S. W. SHORE OF PETERMANN FIORD FROM CAMP OF 25TH MAY, 1876.

Dangerfield Lith. 22 Bedford St. Covent Garden

London School of Hygiene & Tropical Medicine
24 MAR 1...

walking excursions. The greatest distance up the fiord to which we could proceed was 5 miles from camp, and to attain this distance we had to run some risks of falling through hidden crevasses, or slipping from high ice slopes into water-chasms; so that we had to content ourselves with making our furthest look-out point the summit of an ice-pinnacle 18½ miles from Offley Island.

About one mile from us was the nearest glacier of the N.E. shore, two miles beyond it a second, and half a mile further on a third. We had found, as we approached these glaciers, that the main ice of the fiord became more and more fissured, and that the faults in the continuity of the ridges and the furrows became more frequent and embarrassing; but from the eminence now attained it seemed that these glaciers were the nuclei of disruptions of the main ice, and hence the progressively-increasing difficulties of travelling. Carrying the eye along the N.E. line of cliffs, we saw the land terminate abruptly about 20 miles off in a prominent bluff, and from this point for a quarter of the way across the head of the fiord no land was to be seen, but the same strange undulating sea of ice, which from the main ridges lying in a north and south direction, would seem to be flowing into the fiord in an east to west direction. The fact of our distinctly seeing those ridges at so great a distance was perhaps due to the gradual shoaling of the water up the fiord, and the consequent rise in the elevation of the ice.

Carrying the eye to the right of a bearing of N.120° (mag.) from our furthest position, a background of land about 30 miles distant was clearly seen extending behind, and as it were overlapping the apparent termination of the S.W. line of cliffs. The latter cliffs presented to the eye an appearance almost precisely similar to that of the N.E. cliffs, with which they seemed to correspond as if originally parts of the same land. Both were of about equal height, were equally precipitous, presented the same arrangement of strata, the same description of ice-cap; and both were grooved by glaciers, there being four on the S.W. side and three on the N.E. side of the fiord.

When about a mile from the nearest glacier we came to a wide fissure, about 30 yards broad, which seemed to extend nearly across the fiord, and whose precipitous glassy walls, 50 feet high from brink to water, we had no means of descending. The bottom of this fissure was composed of treacherous-looking, slushy ice, with a lane of dark water, 2 feet wide, along the middle; so that had we succeeded in getting down we should probably have been unable to cross. About this same locality were several narrow fissures, some of which, from the very slippery nature of the ice, it was difficult to avoid falling into. One of these, in a tolerably level part of the ice, we found by measurement to be 2 feet wide above, and 23 feet deep, from brink to a probable false bottom of loose snow, on which the light weight of our measuring line rested.

The ice was incessantly crackling. Wherever we stood we heard about every half minute a noise varying between the sharp crack of a whip and the report of a guncap, resulting, as we soon discovered, from the formation of thread-like cracks, many yards in length, which formed a kind of network over the surface of the ice.

The behaviour of the water in the wide fissures was very puzzling. It seemed to rise and fall to a certain extent through the ice, but not enough to account for the whole tidal movement; and we were therefore inclined to believe that the glacier ice was only aground at certain periods of the tide, and that it consequently behaved in some respects like a floe, and in others like grounded ice. Not being provided with a sounding line, no estimate of the depth of any part of the fiord was made. However, to solve the question as to the existence of a vertical tidal movement in the ice, Lieutenant Fulford took a series of sextant angles between the summit of the cliff adjoining our camp and a marked spot on the ice, and taking observations at different periods of the tide, came to the conclusion that there *was* a certain amount of vertical motion.

Having failed to get up the fiord by the N.E. side to a greater distance than 18½ miles from Offley Island, Lieutenant Fulford decided on moving round by the edge of the glacier ice to the opposite or S.W. side, and on trying there to discover a more practicable route than we had hitherto encountered. In the latter attempt, however, we were disappointed, for after travelling along the floe under the S.W. cliffs to a distance of 13 miles from Cape Lucie Marie, we found the glacier ice jammed right against the face of the cliffs, and not affording anywhere a practicable route for our sledge. Between the young floe and the glacier ice was a well marked tidal crack, which extended for three-fourths of the way across the fiord, that is, for as far as the young floe and the glacier ice met without the intervention of an old floe. (See diagram.)

On the 3rd June we commenced our return journey, and stopping for one day at Offley Island, had opportunities of collecting specimens of Silurian fossils, and of observing the glacial planings and scorings which this island exhibits to a remarkable degree. The scorings run uniformly from the summit of the island, at its N.E.

extremity to the beach at the S.W. end, grooving successive layers of grey and black limestone. The layers of rock lie horizontally; both are fossiliferous, the grey abounding in fossil corals, and molluscs, the black containing corals, but to a less extent. The N.E. extremity presents an abrupt precipitous face, 513 feet high, showing the same arrangement of stratified rock as on the glaciated slope, and closely corresponding with the appearance presented by the opposite face of Cape Tyson, one mile distant. Subsequent observations at Cape Tyson showed that in geological formation it closely corresponded with Offley Island. Being under the impression that Esquimaux remains had been found at Offley Island by the U.S. "Polaris" Expedition, we searched carefully round the island for signs of winter or summer habitations, but were unable to discover any, probably owing to the great accumulation of snow on the lower parts of the land.

During this expedition few traces of animal life were seen. On the 28th May several dovekies were seen in watercracks, close to the N.E. cliffs of the fiord, and on the same day an ivory (?) gull was seen flying by the cliffs in a southerly direction. Two seals (an usuk and a neitsuk) were shot by Hans, and several others were seen on the young floe, in the vicinity of Offley Island. Near our camp at the first glacier of the S.W. shore of the fiord tracks of a bear were seen by the Esquimaux Hans. No further signs of life were noticed.

It is manifest from the above that the results of this expedition have not been as decisive as could be wished, yet I think enough has been done to justify us in concluding that the Petermann Fiord is the outlet of a huge glacier stream pouring probably from the eastward, to which the glaciers pouring through the N.E. and S.W. cliffs are insignificant tributaries, not adding materially to the main volume of ice.

In several particulars this glacier presented features deviating considerably from the general rule, which points, although already touched on in this Report, it may be as well to summarise as follows:—1. The absence of onward sliding motion, probably due to the immobility of the floe in the mouth of the fiord, the low gradient of the glacier, and the prolonged cold season. 2. Its partial subjection to tidal influence for more than a mile above the snout. 3. The absence of detached bergs below the snout. 4. The diminutive height of the terminal cliff, ranging only from 16 to 30 feet above the sea level. 5. The presence of water in the fissures 2 miles above the snout, when the mean altitude was 40 feet. 6. The low gradient of the glacier.

On the 7th June our party returned to Thank God Harbour.

I have the honour to be, Sir,

Your obedient servant,

R. W. COPPINGER, M.D.,

Surgeon, R.N.

To Capt. H. F. Stephenson, R.N.,
H.M.S. "Discovery."

SUB-LIEUTENANT CRAWFORD CONYBEARE. ORDERS TO, 7TH APRIL. ORDERS TO, FROM LIEUT. ARCHER, 15TH APRIL. REPORT OF, 21ST APRIL. SLEDGE JOURNAL, 8TH TO 20TH APRIL. ORDERS TO, FROM LIEUT. FULFORD, 29TH APRIL. ORDERS TO, 7TH MAY. REPORT OF, 19TH MAY. SLEDGE JOURNAL, 2ND TO 18th MAY. ORDERS TO, 22ND MAY. SLEDGE JOURNAL, 22ND TO 31ST MAY.

H.M.S. "Discovery," at Discovery Harbour,
7th April, 1876.

MEMO.

Fr. Chatel, Cap. Forecastle.
Dvd Stewart, 2nd Cap. Foretop.
W. C. Wellington, Serjeant R.M.A.
Wm. Ward, Armourer.
J. E. Smith, Sailmaker.
Hy. Edwards, A.B.
Hy. Winsor, Carp. Crew.

Lieutenant Archer being detached on an extended journey of exploration down Lady Franklin Sound, I have appointed you to an 8-man sledge, the "Endeavour," victualled for 42 days as an auxiliary to that Officer. You will therefore place yourself at once under his orders, and be ready to leave the ship to-morrow the 8th instant.

2. The two sledges will travel together for seven days, then giving Lieutenant Archer 120 rations, which is separately packed on your sledge, as well as leaving a depôt of 84 rations on the spot selected by him, and exchanging any men with his sledge crew he may wish, return on board by the 22nd April.

3. I desire you will make all possible notes along the coast over which you travel, strictly adhering to the sledge instructions with which you are now fully acquainted.

4. You have my best wishes for a pleasant journey and a safe return.

H. F. STEPHENSON,

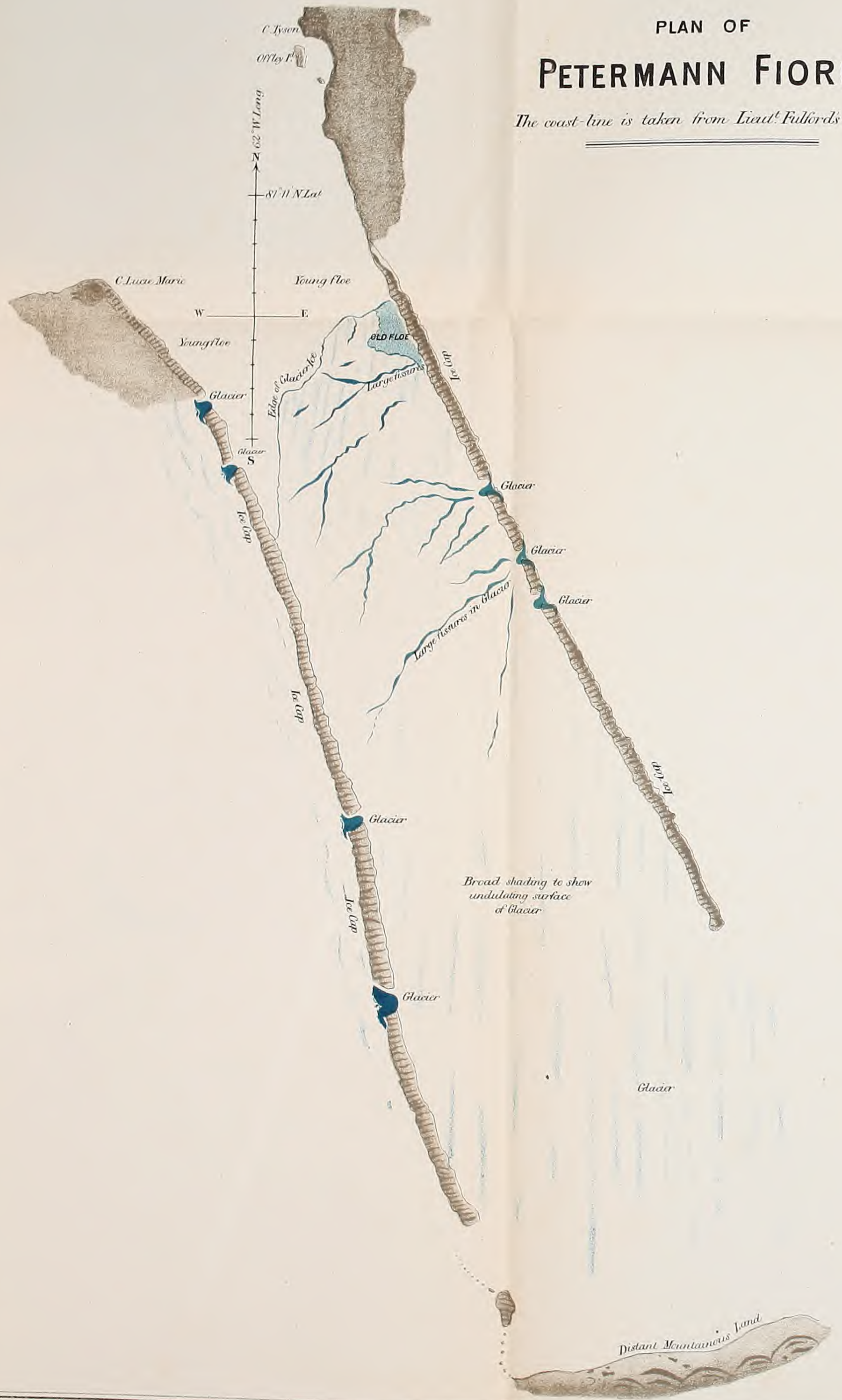
Captain.

To Sub-Lieutenant Conybeare,
H.M.S. "Discovery."

PLAN OF

PETERMANN FIORD

The coast-line is taken from Lieut.t Fulford's Chart.



Dangerfield Lith 70 Bedford St Covent Garden

24 AUG. 1920

Fr. Chatel
Cap. For

Dvd Stew
2nd Cap
top.

W. C. Wel
Serjeant

Wm. War
Armour

J. E. Smi
Sailmak

Hy. Edwa
A.B.

Hy. Wins
Carp. C

North Side of Lady Franklin Sound,
15*th April*, 1876.

Sir,

You will leave this position on the 17th instant, with the 12-man sledge victualled for 10 days, and return to the ship with as much despatch as the state of your sledge will allow.

If you find on your arrival at Stony Cape that you are likely to have any provisions to spare, you are to leave them at that Cape or the Bivouac, taking care that you have ample provisions to return to the ship.

You will in any case leave in as conspicuous a position as possible at Stony Cape a notice of what you have left and where it is to be found.

ROBERT H. ARCHER,
Lieutenant.

To Sub-Lieutenant C. Conybeare.

H.M.S. "Discovery," at Discovery Harbour,
21*st April*, 1876.

Sir,

In obedience to your memo. of the 7th April, I placed myself under the orders of Lieutenant Archer, and on the 8th inst., at 12.30 p.m., I left the ship in command of the party (H.M. sledge "Endeavour," 8 men, accompanied by Mr. Miller, engineer, with H.M. sledge "Westward Ho," 12 men), Lieutenant Archer having proceeded in advance with you.

We encamped the first night a quarter of a mile across the western entrance.

On the 9th we crossed the western entrance, having to double man the sledges, and at noon arrived at Sun Land, meeting you there; and in obedience to your verbal orders proceeded by the icefoot inshore up the sound. We encamped that night 1½ miles from the extremity of Sun Land.

On the 10th we encamped on the land close to the Bivouack Hills, having had very good travelling. On the 11th we crossed the land and encamped in Sun Bay, two miles from Stony Cape: the work having been very severe crossing the land owing to the soft snow.

On the 12th at 10.30 a.m. we arrived at Stony Cape, and found the flag and your orders to me. We crossed Dougal Bay, and arrived at Cape Straight, Miller Island, at 5 p.m., where we found your encampment.

The sledges had come very heavily across Dougal Bay, and the men were rather exhausted.

On the 13th we started along the icefoot of Miller Island, Lieutenant Archer taking charge of the party. At 2.30 p.m. we struck across the bay and encamped three quarters of a mile from Keppel Head.

We arrived at Keppel Head at 11 a.m., where you took leave of the party.

We travelled along the icefoot, and at 2.35 p.m. arrived at a low rocky point formed by the *débris* fallen from the cliffs. Lieutenant Archer selected this as a favourable spot for a boat to be left, and erected a small cairn.

We encamped about 2½ miles further on, off a small point, having had some difficulty in getting the sledges round the point.

On the 15th we started at 9 a.m.; the icefoot was very good till 10.30 a.m., when we arrived at some rough ice. The 12-man sledge could hardly be moved over it, so Lieutenant Archer decided on examining it.

The sledges were hauled on to the floe, unloaded, and the tents pitched. Lieutenant Archer and myself examined the sledge and found both runner irons broken across in the weld, the sledge was weakened considerably, the wood of one runner being strained.

Lieutenant Archer decided that it would be unsafe to allow the 12-man sledge to proceed any further with its present heavy load, so he directed me to return to the ship in charge of the damaged sledge on the 17th victualled for 10 days. I enclose a copy of his letter to me. *See above.*

The remainder of the day was spent in preparing the depôt according to the new arrangement.

On the 16th at 9.30 a.m. we started with Lieutenant Archer's 8-man sledge, victualled for 42 days, and the 12-man sledge carrying the depôt of 288 rations. The depôt was secured on a small point about one mile from the encampment and marked by a flag. My party accompanied him to a small point about 2 miles from the encampment and took leave of him. My party then returned to the tent. I walked a mile out into the channel where I could get a view down the coast; the north side from

Keppel Head and as far as I could see (about 20 miles) runs in a line bearing N.E. by E. and S.W. by W. (true).

The headland known as the island, seems to close the Sound, high distant land being visible on either side of it, I could not see any openings. The south coast closes in and gets considerably lower, showing signs of valleys. The north side from Keppel Head consists of high shale cliffs from 800 to 1000 feet high, with occasional low points formed by the fallen *débris*. We commenced our return journey on the 17th, and arrived on board at 2·30 p.m. on the 20th, having left a small depôt of 48 rations on a small rocky point 400 yards from Stony Cape, as directed by Lieutenant Archer, and also a conspicuous mark and record on that Cape.

I have much pleasure in bringing to your favourable notice the conduct of the men under my command, especially that of Frank Chatel, captain of the forecastle (captain of the sledge), and David Stewart, captain of the foretop.

I have, Sir, the honour to be
Your obedient servant,
CRAWFORD CONYBEARE,
Sub-Lieutenant, R.N.

To Captain H. F. Stephenson, R.N.,
H.M.S. "Discovery," Discovery Harbour.

H.M.S. "Discovery," at Discovery Harbour.
12*th August*, 1876.

8*th April.*

Temperature:—
inside — 9°
outside —28°
Wind N.W. by N. 1 to 2 b.
Dist. made good 5 miles.
Travelled 7 miles.
Hours on march, 5h. 15m.
Rest 0 45

12.30 p.m.—Left the ship in charge of H. M. sledges "Endeavour" and "Westward Ho" (Lieutenant Archer having gone ahead with the Captain's party). Cheered by the ship's company. 1.30.—Reached the icefoot of Expedition Island. The travelling good. 3.0.—Had to leave the icefoot for half-an-hour, the sledges came very heavily through the snow. 5.30.—Left the icefoot and struck across the western entrance, the last half-hour on the icefoot had been bad, we had to double man the sledges. 6.30.—Encamped a quarter of a mile from Expedition Island under the lee of some hummocks. The snow had been very heavy and the men were tired.

9*th April.*

Temp.:—
out —22°
in +10°
North 1 to 2 b. c.
Temp.:—
out —20°
in +10°
Calm b. c.
Dist. made good 4 miles.
Travelled 7 miles.
Hours on march 7h. 15m.
Lunch 1 10
Rest 0 45

5.45.—Called the cook. 9.10.—Started the load of the 12-man sledge, took a long time to pack. 9.45.—The snow was very heavy, and we were unable to move the sledges except by standing pulls. Double-manned the sledges, and at 12.20 reached the icefoot of Sun Land. Halted for lunch. 12.30.—The Captain and Lieutenant Archer arrived and ordered me to proceed inside Sun Land and up the sound in consequence of the bad state of the ice between Sun Cape and Stony Cape. 1.30.—Started round Sun Land on the icefoot, the travelling was very good.

5.30.—Encamped on the floe, the last hour on the icefoot had been bad, having to double-man the sledges occasionally.

Winsor complained of pain and sick headache, and was unable to eat anything, gave him two aperient pills.

10*th April.*

Temp.:—
out —20°
in +20°
Calm m. f.
Temp.:—
out —10°
in +10°
West 2 to 3 b. c.
Dist. made good 5·5 miles.
Travelled 7 miles.
Hours on march 6h. 5m.
Lunch 1h. 5m.
Reloading sledge, rest, &c., 1h.

6.50.—Called the cook. 9.50.—Started on the icefoot, travelling pretty good.

12.35.—Halted for lunch, a lemming was caught during lunch-time. 1.45.—Started. 2.—The 12-man sledge capsized, unloaded it, no damage was done. 2.35.—Proceeded. 3.50.—Reached Cape Rest, left the icefoot and took to the floe, it was wind-blown and had the appearance of old ice. 5.15.—Reached the land. 6.—Camped about 300 yards from Bivouack Hill. Picked up a piece of drift-wood 3 ft. 6 in. in length, 5½ in. in diameter.

Temp.:—
out +10°
in +10 to 32°
Calm c. s.

11*th April.*

6.10.—Called the cook. 9.15.—Started 12-man sledge double-manned, the snow was very heavy. We took 1 hour 5 minutes getting the 12-man sledge to the top of a gentle rise 400 yards from our encampment, brought both sledges to the foot of the second ridge and halted for lunch at 12.30, having made half a mile in 3 hours 5 minutes. The snow was from 1½ to 2½ feet deep, the sledges sinking to the cross-bars, 19 hands on the large sledge being barely sufficient to move it at times. 1.30.—Started, double-manning the sledges. 4.10.—Reached the ice in Sun Bay, the travelling over the floe was fairly good. 5.10.—Encamped about 2 miles from Stony Cape.

Noon.
Temp. 0°.
West 1. 2. o. c.
Temp.:—
out 0°
in +16°
South 2. b. c.
Dist. made good 3 miles.
Travelled 5·5 miles.
Hours on march 6h. 0m.
Lunch 1 10
Rest 0 45

12*th April.*

5.30.—Called the cook. 8.30.—Started on the icefoot. 9.—Unable to travel on the icefoot on account of the water, took to the floe, the travelling very bad. The weather getting thick and snowing. 10.30.—Arrived at Stony Cape and found the Captain's flag, with directions to cross the bay and proceed to Cape Straight.

12.—Halted for lunch, the travelling had been very bad through deep snow, with small hummocks. 1.15.—Started. 5.—Arrived at Cape Straight, Miller Island, where we found the Captain's encampment, and encamped.

Calm b. c.
Temp.:—
out − 6°
in +35°
Calm c. m.
Temp.:—
out 0°
in +10°
Dist. made good 3 miles.
Travelled 4·5 miles.
Hours on march 6h. 15m.
Lunch 1 15
Rest, &c. 1 0

13*th April.*

5.30.—Called the cook. 8.40.—Started on the icefoot of Miller Island, Lieutenant Archer taking command of the party. The travelling was very good. 11.—The 12-man sledge capsized while coming over a crack in the icefoot. 11.35.—Started. Winsor complained of acute pain in his eyes, he had worn snow goggles all day and the previous day as well; his eyes were closed and were running a good deal, I put some green crape inside his goggles, and a bandage over all. 12.5.—Halted for lunch. 1.15.—Started. 2.—Left the icefoot and struck across the bay for Keppel Head. The face of Miller Island is composed of precipitous shale cliffs, running down to a point at Cape Straight. The floe was good for the first quarter of a mile, and then became very heavy with deep soft snow. 5.10.—Encamped on an old floe about three-quarters of a mile from Keppel Head. Winsor's eyes were very painful, and he was unable to see; as soon as the tent was pitched I applied the snow goggles.

After an hour and a half's application of the snow goggles I found that they had not eased the pain or subdued the inflammation. Gave him vin opii in his eyes.

Temp.:—
out −15°
in +25°
Calm b. c.
Temp. −5°.
Calm b.
Temp.:—
out 0°
in +13°
Calm b. c.
Dist. made good 3·25 miles.
Travelled 7 miles.
Hours on march 6h. 5m.
Lunch 1h. 10m.
Repacking sledge, rest, &c., 1h. 20m.

14*th April.*

6.—Called the cook. 9.—Started: the travelling was very bad for some time over hummocky ice. Winsor's eyes were slightly better, I kept a handkerchief over his eyes, there being no shade in my medical box. 11.—Reached the icefoot at Keppel Head and halted for lunch. Observed a parhelion with bright prismatic colours, mock suns on either side, and a circle above the sun, about 90° to the left of the sun there appeared a mock sun (very pale) with vertical ray of light proceeding from it. 12.20.—The Captain took leave of the party, wishing us a pleasant journey.

Started on the icefoot, travelling very good. 2.35.—Reached a low rocky point formed by the *débris* fallen from the cliffs. About 2 miles from Keppel Head Lieutenant Archer erected a small cairn, to mark the place at which a boat might be left if it was required. We had to cut our way through the hummocks off the point. 5.—Rounded a small point and encamped. Fresh breeze from the eastward. Hy. Winsor's eyes were much better, gave him vin opii. The land runs in a pretty straight line from Keppel Head with a few small points formed by the *débris* fallen from the cliffs.

Calm c. m. s.
Temp.:—
out −15°
in +25°
Calm b.
Temp. 0°.
Temp.:—
out −11°
in + 8°
East 2. 3. c. s.
Dist. made good 5 miles.
Travelled 6 miles.
Hours on march 6h. 0m.
Lunch 1 20
Rest 0 40

Temp. :—
out −11°
in + 8°
East 2 to 3. c. s.
Dist. made good 5 miles.
Travelled 6·5 miles.
Hours on march 6h. 0m.
Lunch 1 20
Rest 0 40

The cliffs are from 800 to 1,000 feet high; very precipitous, of shale, with *débris* at the bottom.

There is no ice-foot on the eastern side of the small points, the ice being forced up on to the beach.

15th April.

Temp. :—
out −24°
in +10°
East 3 to 4. b.c.m.

6.—Called the cook. 9.—Started, fresh breeze from the eastward; had great difficulty in keeping our feet from freezing while packing the sledge, numerous slight frost-bites taking place. After we had started a short time, we found that the 12-man sledge was going very heavily, and that something was wrong with the runner; so at 10.30 the sledges were hauled on to the floe and the tents pitched. The 12-man sledge was unloaded. Lieutenant Archer and I examined it, and found both the runner-irons cracked across in the weld (in the centre of both runners); the wood also of one runner was strained. One part of the iron was above the other, quite accounting for the heavy dragging that morning. Lieutenant Archer decided that the sledge would not stand its present heavy load, and that I was to return to the ship with it on the 17th instant, with 10 days' provisions. We were employed all the remainder of the day making the necessary alterations in the depôt, and making arrangements for victualling Lieutenant Archer's party for 42 days.

Jno. Cropp (marine), one of Lieutenant Archer's party, complained to him last night that his right heel was chafed, and that his blanket wrapper had raised a blister. Lieutenant Archer applied cotton-wool and glycerine. To-night it had the appearance of a bad frost-bite; the whole heel, part of the sole, and under the big toe being blistered. I dressed it with glycerine, packing it in cotton-wool, covering the whole with oil-silk, and securing it with a linen bandage. He was kept in his bag all day, and did not complain of pain.

Temp. :—
out −22°
in 0°
East 2 to 4. b.c.q.
Dist. made good 1 mile.
Travelled 1·5 miles.
Hours on march 1h. 30m.
Depôt 5 3
Lunch 1 15

Before supper we shifted tents, I taking the 12-man, with my original party, and four of Lieutenant Archer's, viz., George Bunyan, P.O. 1st C., Robert Hitchcock, A.B., James Thornback, A.B., and Jno. Cropp, Gunner R.M.A. (sick).

16th April.

Temp. :—
out −28°
in +28°
S.E. 1 to 2 b. c.
Temp. :—
out −34°
in −10°
Calm b.
Dist. made good 3 miles.
Travelled 6 miles.
Hours on march 4h. 45m.
Lunch 0 15
Securing depôt 1 0

9.30—Started the 12-man sledge, carrying the depôt. Halted, and left the sledge at the spot selected for the depôt. My party accompanied Lieutenant Archer to a low point two miles from the depôt. The north shore runs in a straight line for about 20 miles, a conical mountain apparently closing the sound, high land being visible on either side of it. An opening may be found trending to the northward, as a dip in the hills was observed on the north side, and about the same distance as the conical hill. 11.—Parted with Lieutenant Archer's party at the point, and gave them three cheers. We returned to the sledge, and secured the depôt on a rocky point about 60 feet above the level of the ice.

While we were securing the depôt, a hare was seen and numerous tracks.

2.—Lunched and returned to the tent at 4.30. Shot a hare near the depôt.

17th April.

Temp. :—
out −28°
in +20°
South 1. b.
Temp. −28°.
Calm b.
Temp. :—
out −28°
in 0°
Calm b. c.
Dist. made good 8·5 miles.
Travelled 9·5 miles.
Hours on march 5h. 30m.
Lunch 1 0

6.15.—Called the cook. 11.15.—Started, the cooking apparatus having been 3h. 30m. preparing breakfast, viz., pemmican and cocoa. 1.45—Halted for lunch close to Keppel Head. 2.45.—Proceeded. 5 45—Halted on the floe, half a mile from Miller Island. The sledge worked very heavily, notwithstanding its light load, the right runner complaining badly.

Cropp's foot was better, but he had to be carried on the sledge all day.

18th April.

5.45.—Called the cook. 10.—Started; travelling good. 12.15.—Halted for lunch at Cape Straight. 1.45.—Started; very heavy across an old floe in Conybeare Bay. The surface was from five to eight feet above the level of the one year's floe, and the hummocks were rounded and "blue-topped" from 20 to 30 feet.

5.—Encamped about 400 yards inside Stony Cape. Placed the spare tent-pole on the Cape with a piece of chintz nailed to it, with a record to the effect that a depôt of 48 rations had been left at the first low rocky point (in the bay), and about 400 yards from the Cape.

Stewart got his finger rather severely frost-bitten while cooking; packed it with cotton wool, and glycerine.

Temp.:—
out −22°
in +20°
Calm. b.
Temp. −20°.
South 1 to 2. b.c.
Temp.:—
out −22°
in + 8°
Calm b.
Dist. made good 7¼ miles.
Travelled 10 miles.
Hours on march 5h. 30m.
Lunch 1 30

19th April.

5.—Called the cook, securing the depôt of 48 rations on the low rocky point. 10.15.—Started; the travelling over the land was bad; a fresh breeze was blowing down the Bellows Valley. 12.—Halted for lunch near the Bivouack Hill. Stewart was suffering from snow blindness and unable to see. I placed a bandage over his eyes. 1.30.—Started; travelling very good.

Nearly all of us felt the glare during the afternoon, notwithstanding that we all wore goggles. 6.10.—Encamped close to the extremity of Sun Land.

9 p.m.—Stewart's eyes were better; applied vin. opii.

Temp. −23°.
S.W. 3 to 4.
Temp.:—
out −20°
in +10°
North 1. b. c.
Dist. made good 9·5 miles.
Travelled 11·5 miles.
Hours on march 6h. 25m.
Lunch 1 30

20th April.

5 a.m.—Called the cook. 9.10.—Started. 11.—Reached the icefoot of Bellot Island and halted for lunch. We shot one hare out of a group of seven that we saw while halted. 12.15.—Proceeded; arrived on board at 2.30 p.m. The men's eyes were tried very much by the sun, and Winsor was slightly snow-blind.

We had a good deal of trouble with the 12-man cooking apparatus on our return journey. On the 17th it took 3h. 30m. preparing the breakfast (temp. —28° S. 1).

I think that the surface of the kettle is too large for the flame and also too near it, the flame thereby losing power.

The hide straps for the span on the runner do not answer; they catch every small piece of ice and stop the sledge. The plan, as fitted by Frank Chatel (captain of sledge), answered better.

The span to reeve through a thimble seized in a small strap, lashed to the upper part of the runner by the foremost batten. The 8-man sledge was fitted in this way on leaving the ship, and answered perfectly.

Temp.:—
out −29·5°
in +10°
Calm b. c.
Temp. −22°.
Calm b.
Dist. made good 4·5 miles.
Travelled 6 miles.
Hours on march 4h. 5m
Lunch 1 15

List of Crew on leaving Ship—

Frank Chatel, Captain Sledge.
David Stewart, Captain Foretop.
Jno. E. Smith, Sailmaker
William Ward, Armourer.
William Wellington, Sergeant R.M.A.
Henry Edwards, A.B.
Henry Winsor, Carpenter's Crew.

Additional on Returning—

George Bunyan, P.O. 1st C.
Robert Hitchcock, A.B.
James Thornback, A.B.
Jno. Cropp, R.M.A. (sick).

Weight on starting, 1,539 lbs. 9 oz. weight per man, 219 lbs.

H.M.S. "Discovery," Discovery Harbour,
29th April, 1876.

Sir,

The necessity of sending a boat to Polaris Bay appearing to me of much importance, I deem it expedient to send the 15-foot ice-boat there for that purpose, and also a depôt of 200 lbs. of stearine.

It is my direction, therefore, that you carry out this duty, in the performance of which you are to take command of H.M. Sledge "Endeavour," and the 11 men named in the margin as your crew.

Frank Chatel, C. Fcle.
Dd. Stewart, C. F. Top.
Geo. Bunyan, Ropemaker.
Wm. Ward, Armourer.
Jno. E. Smith, Sailmaker.
James Thornback, A.B.
Robt. Hitchcock, A.B.
Hy. Edwards, A.B.
Hy. Winsor, Carptrs. Crew.
Wm. Wellington, Sergt. R.M.A.
Jno.Cropp, Gunner R.M.A.

You will be provisioned for 14 days with the exception of pemmican and biscuit, which you are to take from the depôt at Polaris Bay, in the event of your running short of them.

As you have selected night travelling, you will leave this ship on the evening of the 2nd May (at whatever time you consider most convenient), and proceed to Polaris Bay with all dispatch, secure the boat near the observatory, and leave a record stating the amount of the depôt you brought over, and where secured; also any information you may consider of use to our sledges on that coast; after that return to the ship.

I enclose for your assistance in selecting a route Lieut. Archer's observations of his passage across.

In the event of meeting open water, return at once to the ship.

The usual sledging notes are to be taken.

REGINALD B. FULFORD,
Lieut., Commanding Officer.

To
Sub-Lieut. Crawford Conybeare,
H.M.S. "Discovery."

H.M.S. "Discovery," at Discovery Harbour,
7th May, 1876.

Memo.

You will take charge of the 8-man sledge, with 15-foot ice-boat under the order of Lieut. R. B. Fulford, and proceed with him across Hall's Basin to Polaris Bay.

2. Waiting at Hall's Rest till the arrival of Dr. Coppinger, G. Emmerson, Cf. Bos. Mte., with 10 men and two sledges, when you will take command of the whole party, and return to the "Discovery" with all despatch.

3. This party will consist of two 8-man sledges, and my 5-man sledge with tents and gear complete, also a 12-man tent and gear complete, which must be distributed between the three sledges, making a total of 31 officers and men.

4. You will leave in depôt the stores you are now taking over, taking care to enter the same in the book that you will find there for the purpose, as well as any surplus you may have to spare, for the benefit of Lieut. Beaumont's party next month.

5. I intend leaving the ship on the 10th instant for Polaris Bay, so am in hopes of catching the party up before you reach the opposite coast.

I wish you a safe journey over and a speedy return.

H. F. STEPHENSON,
Captain.

To
Sub-Lieut. Conybeare,
H.M.S. "Discovery."

H.M.S. "Discovery," Discovery Harbour,
19th May, 1876.

Sir,

In obedience to the annexed orders of Lieutenant Fulford, Commanding Officer, I started at 7.50 P.M., on the 2nd May, in command of the 8-man sledge "Endeavour," with the 15ft. ice-boat, and 11 hands, carrying a depôt of 200lbs. of stearine to be left at Polaris Bay.

We encamped that night ¾ mile from Distant Cape, having had great difficulty in cutting a way through the hummocks. After supper, I found that Cropp had injured his heel and would be unable to proceed any further, so I returned to the ship, leaving my party encamped for the night. I reported the circumstance to Lieut. Fulford, who made arrangements for bringing Cropp back on the dog sledge. I rejoined at 9.30 P.M., on the 3rd, and started at once.

We found the travelling very bad, having to unload the boat occasionally and take part of the load over at a time.

On the 8th, at 7 A.M., we had reached 5¾ miles from Distant Cape, and at 4.0 P.M., Lieut. Fulford arrived with orders from you to return on board at once. I left the boat, taking only the sledge tent and one day's provisions, which I left at my first camp, ¾ mile from Distant Cape, and walked back to the ship with my men.

In obedience to your memo., May 7th, 1876, I started on the 7th, at 7.45 P.M., with Lieut. Fulford, 18 men, and the 20ft. ice-boat, on the 12-man sledge, and reached the 15ft. boat at 4 A.M.

We found the travelling very good till within 1½ miles of Hall's Rest, when the ice became very hummocky. In getting the 20ft. boat through the hummocks, the right runner of the 12-man sledge turned in and disabled the sledge. We took both boats and provisions on shore to the observatory on the 8-man sledge, repairing the 12-man sledge temporarily. We pitched the tents on the ice-foot below the observatory, your party having arrived at the same time. The next day the 12-man sledge was repaired and made serviceable, the foremost style had gone across the tenon, and the second was slightly sprung. The remainder of the party were employed according to your orders in erecting the brass tablet over Captain Hall's grave, making a survey of the depôt, and completing our provisions from the depôt up to the 21st inst.

For the next four days we were confined to our tent as it was blowing a gale from the northward with much snow drift.

Dr. Coppinger, Geo. Emmerson, C.B.M., and eight men arrived at 7 P.M., on the 16th, from Repulse Harbour, with two sledges.

On the 17th, at 7.55 A.M. (it having lulled), you gave the order to start, the party consisting of two 8-man sledges, and one 5-man (30 officers and men). We halted that night 14 miles from Hall's Rest.

We arrived on board at 6 P.M., on the 18th, having marched that day 25 miles.

I have the honour to be,
Sir,
Your obedient servant,
CRAWFORD CONYBEARE,
Sub-Lieut., R.N.

To
Capt. H. F. Stephenson, R.N.,
H.M.S. "Discovery."

2nd May.

7.50 P.M. Left the ship with H.M. Sledge "Endeavour," and 11 men taking 15ft. ice-boat. 9.10. Left the ice-foot. 11.0. Halted for lunch close to Distant Cape; travelling over the floe good.

Temp. — 5°
Calm b. c.

12.0. Started. 12·30. Reached Distant Cape, and struck off for Cape Lupton. The travelling through the hummocks was very bad, having to cut a road before bringing the sledge on. 3.40. Camped.

Temp out — 9°
in + 20°
Calm b. c.
Dist. made good 5¼ miles, travelled 7½
Hours on march, 6-50.
Lunch 1-0.

Cropp's heel was very much inflamed, and he complained of great pain.

I decided that it would be best to send him back to the ship, so I started at 7.30 A.M., and arrived on board at 9.30. Arrangements were made for bringing him back on the dog sledge.

Temp. out — 11°
in + 28°
Northy. 3 to 4 b. c.

7 P.M. Started from the ship, and arrived at the tent at 9 P.M.

3rd May.

Temp. — 10°
N. 3 to 5 b. c. q.

9.30 P.M. Started with the sledge, travelling very bad through the hummocks. 12.0. Halted for lunch, and pitched the tent, fresh breeze from the northward. 4.0 A.M. Started. 4.50 A.M. Encamped; the travelling had been better over a few floes.

Temp. out — 10°
in + 10°
North 6 to 7 o. s.
Dist. made good 2½ miles, travelled 3
Hs. on march 6-20
Lunch 1-0

8 A.M. Blowing a gale from the northward. A few slight frostbites occurred.

4th May.

6 P.M. Called the cook. 8.40. Started. 9.30. Span carried away, spliced it. The travelling over an old floe was very heavy, one runner cutting through the crust, and burying the sledge. Unloaded, and took the boat across alone, and then returned for the remainder.

Temp. — 12°
calm b. c.
Temp. out — 15°
in + 26°
Southy. 2 b. c.

11.30. Halted for lunch, and reloaded the sledge. 12.30. Started; travelling very bad. 4.45 A.M. Halted on an old floe.

Dist. made good 2 miles, travelled 3
Hs. on march 6-25
Lunch 1-0

5th May.

Dist. made good 10 miles, travelled 12
Hs. on march 4-50
Lunch 1-0.

3.15 P.M. Lieut. Fulford arrived with orders for me to return to the ship with my men, leaving the boat. 6.50. Started, with the sledge, tent, and one day's provisions. 10.0. Halted for lunch at first night's camp. 11.0. Started, leaving sledge. Arrived on board at 12.40 a.m.

7th May.

Temp. — 2° calm b. c.
Temp. out — 5° in + 28° calm b. c.
Dist. made good 10 miles, travelled 12
Hs. on march 7-0 lunch and securing sledge 1-15

7.45 P.M. Started with the 20ft. ice-boat on 12-man sledge and 18 men, Lieut. Fulford in command of the party.

10.45. Halted for lunch at first camp. 12.0. Started, bringing on 8-man sledge and tent; the 20ft. boat was very crank, and capsized twice. 4.0 A.M. Camped on old floe, at the place where the 15 ft. boat had been left, about 4½ miles east of Distant Cape.

8th May.

Temp. out — 5° in + 17° calm b. c.
Temp. — 1° Southy. b. c.
Temp. out 0° in + 32° Southy. 2 b. c.
Dist. made good 9¼ miles, travelled 11
Hs. on march 7-0 Lunch 1-0

8.30 P.M. Started. 9.45. Arrived at centre nip, and cut our way through by 10.15. 11.40. Halted for lunch. 12.40. Started, travelling very good on young ice, with occasional old floes. 4.30 A.M. Halted 13 miles from Hall's Rest.

9th May.

Temp. out — 2° in + 32° S. Wy. 2 b. c.
Temp. — 3° S.Wy. 3 to 4, b. c. q.
Temp. out — 2° in + 35° S. Wy. 3 to 4, b.c.
Dist. made good 6½ miles, travelled 9
Hs. on march 7-10 Lunch 1-0

8.20 P.M. Started travelling over old floes, with occasional patches of young ice. 11.30. Halted for lunch, pitched the tent as there was a fresh breeze from the S.W. 12.30. Started travelling, very good at times over young ice quite free from snow. 4.30 A.M. Encamped 6 miles from Hall's Rest.

10th May.

Temp. out — 2° in + 38° S.S.W. 3 to 4, b.c.
Temp. — 10° S.W. 2 3 c.
Temp. out + 10° in + 34° S. Wy. 2 to 3 c. s.
Dist. made good 5 miles, travelled 7½
Hs. on march 7-5 Lunch 1-5

8.20 P.M. Started, travelling over old floes very bad. 11.30. Halted for lunch. 12.35. Started, travelling very bad over the old floes, and through the hummocky ice. Winsor got slightly, snow blind while cooking the breakfast; gave him vin opii. 4.30 A.M. Camped 1½ miles from Hall's Rest. 9.0 A.M. Winsor's eye became worse, gave him vin opii.

11th May.

Temp. out + 10° in + 38° S.S.W. 1 to 2 c. s.
Temp. + 11° Calm c.

8.30. Started, travelling very bad through the hummocks, having to double man the sledges. 11 P.M. The lashing of the right runner carried away, the runner turned in, and the tenons of the four foremost styles carried away. Halted for lunch, and took the 20ft. boat off the sledge. Cut a road through the hummocks to the ice-foot, and took the 20ft. boat up to the observatory on the 8-man sledge. Took the 15ft. boat up on the 8-man sledge, when she returned, and the gear on the 12-man which we had fished temporarily.

Temp. out + 10° in + 49° W.S.W. 3 to 6, c. s. q.
Dist. made good 1½ miles, travelled 2
Hrs. on march 4-0
Lunch, making road, 2-30

1.0. Saw the Captain's party amongst the hummocks, and went out to meet him. 3 A.M. Camped on ice-foot, below the observatory.

12th May.

8 P.M. Blowing fresh from the north-eastward; got the 12-man sledge and re-lashed the runner. We found that the damage was not so great as had been expected. The tenon of the foremost style was broken, the second slightly sprung, and the after end of the runner strained; the sledge was re-lashed and made quite serviceable.

A party went up to Hall's grave to erect the tablet, and the remainder were with Lieut. Fulford, making a survey of the depôt, and completing our rations till the 21st inst.

Built a snow wall round the weather end of the tent.

Temp. out + 10°
in + 25°
E.N.E. 8 to 9 c. q.

13th May.

Blowing hard from the E.N.E. all day. We were unable to leave the tent. Saw several snow buntings.

Temp. out + 10°
in + 15°
E.N.E. 6 to 8, c. q.

14th May.

Blowing hard, confined to the tents.

Temp. out + 10°
in + 20°
E.N.E. 7 to 9 c. q.

15th May.

7 P.M. Dr. Coppinger and Geo. Emmerson arrived with 8 men from Repulse Harbour.

Temp. out + 9°
in + 18°
N.Ey. 7 to 8, c.q.

16th May.

Confined to tents; blowing hard.

Temp. out + 10°
in + 20°
N.Ey. 6 to 8, c. q.

17th May.

7.55 A.M. Started (the wind having lulled) with two 8-man, one 5-man sledge, and 28 hands; the Captain accompanying the party.

11.30. Halted for lunch, 6 miles from Hall's Rest. 12.30. Started. 6.10. Halted. At 4 P.M., Ed. Eddy's (Chief Carpenter's Mate) legs gave in; he complained of sudden pain in left knee, and was unable to stand. We carried him on the sledge.

Temp. + 25°
calm b. c.

After supper I looked at his knee, and could see no unusual appearance. I applied the liniment and bandaged the knee.

Geo. Leggett (Ship's Cook) was violently sick; gave him a Dover's powder.

Temp. out + 15°
in + 36°
Dist. made good 18 miles, travelled 20
Hs. on march 9-15
Lunch 1-0

18th May.

7.0 A.M. Started.

9.30. Halted for lunch close to centre nip.

10.30. Started. Leggett became snow blind.

2.0. Halted for lunch half a mile from Distant Cape. Hitchcock became snow blind.

2.45. Started. 6.15. Arrived on board.

Dist. made good 23 miles, travelled 25
Hs. on march 9-30
Lunch 1-45

H.M.S. "Discovery," at Discovery Harbour,
22nd May, 1876.

MEMO.

You are to proceed with the 5-man sledge, victualled for ten days, to H.M.S. "Alert," at Floe Berg Beach, with the accompanying despatches for Captain Nares, receiving your further instructions from him.

Danl. Girard, A.B.
James Thornback, A.B.
Rt. Hitchcock, A.B.
Thomas Chalkley, A.B.

The rough chart of the coast, with my track, is sufficiently correct to the Lincoln Bay Depôt; from there you must be guided by circumstances and the state of the ice-foot.

Should you, by any chance (which I do not think at all likely), be prevented from rounding the steep cliffs to the northward of Lincoln Bay in consequence of water, you are to place my despatches in the cylinder at that Depôt, and return to this ship.

A pleasant journey and speedy return.

H. F. STEPHENSON,
Captain.

To
Sub-Lieutenant Crawford Conybeare,
H.M.S. "Discovery."

H.M.S. "Discovery," at Discovery Harbour,
12*th August*, 1876.

Sir,

In obedience of your orders of 22nd May, I left this ship on 22nd May for H.M.S. "Alert," arriving there on the 31st May. I was unable to return on account of the bad state of the ice. I enclose a copy of my letter to Captain Nares, and my journal.

I have,
Sir,
The honour to be
Your obedient Servant,
CRAWFORD CONYBEARE,
Sub.-Lieut.

To
Capt. Stephenson,
H.M.S. "Discovery."

22nd May.

7.15 P.M. Started with H.M. Sledge "Endeavour" and four men for H.M.S. "Alert;" Dan Girard, A.B. (capt. of sledge), Robt. Hitchcock, A.B., Jas. Thornback A.B., Thos. Chalkley, A.B.

N.Ey., 1 to 3, c s.
No thermometer.
Dist. made good, 10 miles
Travelled, 13 m.
Hrs. on march, 8
,, lunch 1-15

10. Had to leave the ice-foot at Distant Cape. 10.30. Halted for lunch, and cut our way through the ice-foot on to the land ice. 11.45. Started; the cooking apparatus, having taken 1 h. 10 m. to boil. 4.30 A.M. Camped about half-way across St. Patrick Bay, the travelling having been very bad since we left the ice-foot.

23rd May.

5. P.M. Called the cook. 7.50. Started. Strong breeze from the N.E.; travelling very good on the ice-foot. 11.35. Halted for lunch at south side of Shift Rudder Bay. While we were at lunch I saw a bear's tracks amongst the hummocks leading to the northward. 1. Started. The allowance of rum for boiling the tea was not sufficient, he lamp went out before the water boiled. It came on to blow heavily from the N.E., early blinding us with the drift, so we camped at 5 A.M. under the lee of Cape Beechey.

Dist. m.g. 8 miles
Distance travelled 11-5.
Hrs. on march, 7-45.
Lunch 1-25

24th May.

5.30. Called the cook. 8.10. Started on the ice-foot. 10. Left the ice-foot and took to the floe. 11.0. Left the floe, as it became hummocky with a great deal of water, and took to the ice-foot. Midnight. Halted for lunch. 1.5. Started out through the hummocks to an old floe outside. Found old sledge tracks on the floe; the travelling was very good. 5 A.M. Halted and encamped; the travelling had been very bad for the last hour through the hummocks off Wrangel Bay.

Dist. m. g. 8
,, travelled 10
Hours on march, 7-45
Lunch 1-5

25th May.

5.30 P.M. Called the cook. 8.20 Started. The weather was very thick, making it exceedingly difficult to see the leads amongst the hummocks from floe to floe, and the travelling was very troublesome, as there was a good deal of water amongst the hummocks, over our knees at times. 12.0. Halted for lunch one mile from the north cape of Wrangel Bay. 1.15. Started, through the hummocks, very bad, with a great deal of water. 3.15. Took the land-foot, the ice-foot was separated from the land hummocks in places leaving a broad crack 8 to 10 feet wide. 5.40 A.M. Encamped on land behind the hummocks.

N.Ey. 3.4 c.

Calm c.s.

Calm c.s.
Dist. m.g. 8 miles
Travelled 6 ,,
Hours on march, 8-5
Lunch 1-15

26th May.

4.50 P.M. Called the cook. 7.40. Started, the travelling was very bad, having to cut roads on the snow slopes. Snowing very heavily with a breeze from the north, making it impossible to see ahead. 10.0. The land foot became almost impassable on account of the snow slopes; the weather cleared a little, and I saw a large floe leading to the northward, close to; so we lowered the sledges over the hummocks on to the ice-foot,

and struck out for the floe. 11.10. Halted for lunch. 12.20 A.M. Started on an old floe, making for a lead of floes outside. 3.0. Got into the hummocks and had to retrace our steps as it was unsafe to go on, owing to the quantity of water and not being able to see ahead. 3.30. Camped on an old floe. I went with Girard to cut a road to a very large floe outside of us. 4.30. Got back to the tent.

When going ahead of the sledge I crossed a drift of hard snow between a floe and the hummocks, when in the middle the snow began to give, leaving me barely time to reach the hummocks before the whole fell in, leaving a broad crack of water some 8 to 10 feet wide and 20 feet long. The ice had eased away from the floe for some distance, the snow having bridged the crack over.

Calm c.s.
Dist. m. g. 3.5 m.
Travelled 6.0 m.
Hours on march, 6-40
Lunch 1-10

27th May.

4.30 P.M. Called the cook. 7.20. Started on the old floe; the travelling was fairly good. 10.50. Halted for lunch; the travelling had been very bad crossing the nips between the floes, water everywhere amongst the hummocks. 12.10. Started; the right runner had turned in, so we lashed the sailing batten upright to it. 3.0. I went ahead on a floe (of one season) and found water 6 inches deep under the snow; the water was salt, and I could not see any cracks through which it could have come. We skirted round the edge of the floe and found the snow soft, but no water. 3.45. Encamped, as it came on to snow very heavily. Chalkley complained of pain and stiffness in his legs, they were very much discoloured inside his thighs and the calves of his legs; his gums are very tender and bleed occasionally. He felt it first yesterday. I am afraid that there is no doubt that it is scurvy.

Dist. m.g. 4 miles
Travelled 6 ,,
Hrs. on march 7-5
Lunch 1.20

28th May.

5.0 P.M. Called the cook. 8.0. Started. 9.30. Had to take to the land-foot. 11.0. Arrived at Cape Frederick VII.; it is impossible to cross the bay here as there are three large water spaces about a mile off the cape with several seals in them, the largest was at least 300 yards in length. Commenced cutting a road round the cape along the snow slopes. 12.0. Halted for lunch. 1 A.M. Started on the road we had cut. It cleared up, and I saw a lead across the bay which we took. It was very wet for the first mile, the snow was undermined by the water. We passed two large seal holes. 4.30. Encamped on the land-foot under the depôt at Lincoln Bay.

Chalkley was worse all this forenoon and hardly able to walk, but got better after lunch. Re-lashed and fished the sledge after supper. All the tenons of the right runner were carried away and also two on the left.

Dist. m.g. 5 miles
Travelled 7 ,,
Hours on march, 7-30
Lunch 1

29th May.

5.0 P.M. Called the cook. 8.0. Started; the travelling after we left the depôt became very good indeed. 11.30. Halted for lunch under the steep cliffs on the north side of Lincoln Bay. Chalkley is worse to-day, he had to hold on to the sledge, to be able to get on at all. 12.45. Started. 3.0. The travelling had become very bad on the snow slopes; in one place the sledge took charge and pulled us with it into a hole about 12 feet deep. We got the sledge out without any damage. Shortly afterwards we had to leave the land-foot, and had great difficulty in getting on to it again. The lee runner turned right in while we were crossing a slope. We reversed the sledge as the right runner was so strained, and set up the fish to the lee one.

5.0. Came to a very bad slope, and encamped.

Reduced the provisions, so as to make them last a day longer (till 2nd June, instead of 1st June); and issued only half allowance of rum at the men's own request.

Northly, 2.3, b.c.

Dist. m.g. 7 miles
Travelled 8 ,,
Hours on march, 7-15
Lunch 1-15
Re-lashing sledge 0.30
Northly, 1.2 c.s.

30th May.

5.0. Called the cook, and turned out to cut a road along the snow slope. The weather was very thick, snowing, with a northerly wind. 8.0. Started. Very hard work getting along the snow slopes; the lee runner turning in several times. 11.40. Halted for lunch. Chalkley had been better, and was able to walk ahead of the sledge. 1.0. Started; the travelling became very good indeed. 4.20. Passed a cape with a cairn on it and record tin (empty). 5.25. Encamped about half a mile from the cape. Hitchcock became snow-blind after we halted; gave him vin opii.

Dist. m.g. 8 miles
Travelled 9 ,,
Hours on march, 8-5
Lunch 1-20
Making road 1-15

31st May.

Calm b.c.s.

Calm c.s.

Dist. m.g. 10 miles
Travelled 11 ,,
Hours on march, 8-35
Lunch, rest 6-30

6.0 P.M. Called the cook. 8.0. Sub-Lieut. Egerton with a party came down from H.M.S. "Alert." They were going to Cape Union. 9.15. Started. Had to carry Chalkley on the sledge. 12.0. Halted for lunch at 5-man tent, by Black Cape. 1.0. Started. 3.30. Halted and pitched the tent for a rest after we had got round Cape Rawson. It came on to blow from the northward just as we pitched the tent, the snow falling on the tent melted and leaked through. 9.0 A.M. Started. It was blowing very heavily from the northward, and we could not see for the drift. We steered by the line of grounded hummocks on the beach.

12.20 P.M. Arrived on board H.M.S. "Alert," and gave the dispatches to the Commanding Officer, Captain Nares being absent.

H.M.S. "Alert," Floe Berg Beach,
1st June, 1876.

Sir,

In obedience to the orders of Capt. Stephenson, I left H.M.S. "Discovery", on the evening of the 22nd May with despatches for you.

When amongst the hummocks off Wrangel Bay, I found water in considerable quantities, often knee-deep. I found more water on nearing Cape Fred. VII., and in one place, a crack 8 to 10 feet wide, between a floe and the hummocks; off the cape were three large water spaces, the largest 300 yards at least, in length, with several seals in them.

The travelling along the coast to the northward of Lincoln Bay was very bad, having to cut roads along the snow slopes, the water preventing us taking to the ice-foot.

I have,
Sir,
The honour to be
Your obedient Servant,
CRAWFORD CONYBEARE,
Sub-Lieut.

To
Captain Nares,
H.M.S. "Alert,"
Floe Berg Beach.

DR. THOMAS COLAN. LETTER TO DIRECTOR-GENERAL OF THE MEDICAL DEPARTMENT, 27TH OCTOBER, 1876.

October 27th, 1876.
H.M.S. "ALERT," at Valentia Harbour.

Sir,

Not printed.

I have the honour to transmit the medical and surgical journal of this ship for the year 1875; the nosological returns up to this month; letters relative to the deaths of Niel C. Petersen, Interpreter, and George Porter, Gunner, Royal Marine Artillery, and my certificates of service.

In my journal will be found details concerning the state of health of all on board, the sanitary condition of the ship, the winter arrangements, the autumn sledge operations, the Esquimaux dogs, food, clothing, &c., while in the nosological returns all subjects connected with health are brought up to this October.

In this letter I purpose giving an abstract of our movements and condition (including those I know of the "Discovery") since I last had the honour to address you from Carey Islands, on the 26th of July, 1875, when I informed you that the health of the members of the Arctic expedition was most satisfactory.

After depositing a depôt of provisions for 120 men for 30 days, and also our letters, on the S.E. island, the ships left on the 27th of July, and next day arrived in Hartstene Bay, Port Foulke, near to the place where Dr. Hayes wintered in 1860-61. While here we procured some ducks and hares, as also one reindeer, shot some distance inland by an officer of the "Discovery." The original village of Etah we found to be deserted, and it had apparently been so for some years. At Port Foulke itself there existed one hut, or iglu, capable of accommodating about six persons, which exhibited signs of having been recently inhabited, judging from the freshly denuded bones of seal scattered about,

and the cached blubber of the same, together with Esquimaux implements of the chase, several articles once belonging to the "United States," the "Polaris," or both, such as a wooden box marked "Goldsmith. 7. Dist. N.Y.," an iron instrument used, probably, for skinning animals, and which was marked with the letters "U.S." on the handle, a brass rod, tin meat or biscuit canisters, leaves of books, &c. From our anchorage Captain Nares and Commander Markham proceeded in a boat to Life Boat Cove, and found the remains of the encampment formed by the people of the "Polaris," when wintering here in 1872-73. A good deal of vegetation exists at Port Foulke. Leaving on the 29th, the "Discovery" went and laid out a travelling depôt at Cape Sabine, while this ship proceeded to Cape Isabella, where records were left, as also a cask for any letters that may arrive for us in the future. Snow fell, and ice formed on deck in the evening. During the middle watch, on July 30th, both ships encountered the pack. From this time till we entered into winter quarters there ensued an almost incessant, a most severe, and a perilous struggle with the ice. Foiled, and sometimes driven back, over and over again this vessel, guided by Captain Nares from the crow's nest, which he scarcely ever left except when Nature imperatively demanded food and rest, and followed gallantly by the "Discovery," was driven through every available lane or passage, the pack being sometimes charged in order to form a way. We kept along the west side of Smith Sound with, in general, high precipitous cliffs on our left hand, while the great mass of the pack was on our right, studded with large and numerous icebergs, probably thrown off from the great Humboldt glacier on the east side.

In case of being nipped provisions were kept ready on deck to be thrown overboard, and knapsacks and haversacks were kept filled. The passage round Cape Frazer was very difficult, but was effected by indomitable perseverance.

On the 4th of August we entered Hayes' Sound and ran into it for several miles. The glaciers about here were very grand, and the land in general high, and partly covered with snow. The soil was deeper in the valleys than what we generally met elsewhere, and vegetation was abundant. From the tracks and traces we saw, the musk ox, reindeer, hare, lemming, and fox resort here. Traces of Esquimaux caches, &c., were found on the shores of the Sound, and on Norman Lockyer Island, at its mouth, some remains of iglut were seen, but all were considered to be of very ancient date. We got to Franklin Pierce Bay on the 9th, where a number of crinoids were dredged up, and where we killed two walrus, the flesh of which was very palatable and good; walrus appear not to advance further north than this. We entered Dobbin Bay on the 12th. It is large, surrounded by high land of conglomerate limestone, very much stratified, the strata in general dipping towards the north. On the whole it was a most uninviting and barren place. Some hares are procurable here. Docks were cut for the ships, in ice between 2 and 3 feet thick, and a depôt landed for 120 men for 30 days. Icebergs abounded in the bay, coming from the Empress Eugénie Glacier at its head. On the 16th, when to the westward of Hayes' Sound, we endeavoured to cut docks, but the ice being from 10 to 12 feet thick, we had to ram with the vessels and blast with gunpowder, even to partially effect our purpose. On the 17th, it was only by great promptitude in moving her that this ship was saved from a severe nip. On the 20th the "Discovery" landed a travelling depôt at Richardson Bay, and on the 22nd both ships crossed from the east to the west side of Kennedy Channel, where they passed Cape Constitution, from whence, Morton, of Kane's expedition, saw what was deemed to be an open sea. The "Polaris" found open water here also, and now we found the same; but soon, in Hall Basin further north, we met heavier ice than before. On the 23rd the "Discovery" laid out a travelling depôt at Cape Morton, and both ships anchored in Bessels Bay, the hills about which appeared very barren and partially covered with snow. Here we saw some eider duck, and the dredge brought up some annilidæ. The temperature was below freezing point. Next day we left, re-crossed to the west side, and entered Lady Franklin Sound. Early next morning 9 musk oxen were killed on shore. These we shared between the ships. The flesh, we afterwards found, differed much, some parts being most palatable and eagerly eaten, while others were musky and not relished. In Discovery Harbour were found winter quarters for our consort, and it proved to be well situated for procuring any game that might frequent those parts, for 45 musk oxen were killed during the stay of the "Discovery" (a period of close on 12 months), besides some hares and birds. A coal mine was discovered later on, about 6 miles away, by Mr. C. Hart, naturalist of the above-named ship. A great deal of ice sets into the strait from the northward.

Taking with us Lieutenant W. Rawson and seven men of the "Discovery," making this ship's complement 70, we bade her farewell on the 27th, and endeavoured to push to the northward. In a small bay near Cape Beechy we, on the 29th, killed three musk

oxen, two being young, and captured our first lemming. Here, in about Latitude 81° 50′, Captain Feilden, naturalist, found on our way down on August 7th, 1876, the most northern traces of Esquimaux yet discovered, consisting of what appeared to be a stone lamp, a knife-shaped bone instrument, portions of a wooden sledge, &c. In Lincoln Bay on the 30th a small depôt was landed, and a cairn built. We met extremely heavy ice trying to push forward this day, and had to seek shelter in Lincoln Bay again on the 31st.

On the 1st of September the wind blew hard from the S.W., easing off the pack, so we left the bay and ran before the wind. In the forenoon watch we had entered the highest Latitude yet attained by any vessel, and at noon hoisted the British ensign to signify the fact. We passed along the west side of Robeson Channel to the north-west into the circum-polar sea, meeting very heavy floes—icebergs ceasing to exist—the land on both sides trending away to the east and west. We proceeded till stopped by Polar ice of a thickness afterwards ascertained to range up to 89 feet. After a vain attempt to get further, we returned about a mile-and-a-half, and took shelter behind some floebergs—as large pieces of ice broken off from the floes were afterwards named—in a very slight indentation in the land, and in a cheerless and bleak situation. The spot was named later on Floeberg Beach, and was situated in Latitude 82° 27′ N., and Longitude 61° 22′ W. On one side of us was rather barren and not very high land, partly covered with snow, and on the other extended, as far as the eye could reach, the Frozen, or, as it was afterwards called, the Palæocrystic Sea, studded with floebergs. The floe ice of this sea was frequently estimated afterwards to be at least 150 feet thick.*

In this place we established our winter quarters, and passed the longest and darkest winter ever spent in the Arctic regions. We lost the sun on the 12th of October, 1875, and did not see him again until the 2nd of March, 1876, a period of 142 days. For six months no sunlight was admitted, save a little for a short time through the deck by means of the illuminators, the cold not admitting of the removal of the snow from the upper deck; and so those on board had to live below in darkness or artificial light for a long time. The cold at times was very intense, and persons leaving the lower, and going on the upper deck, were exposed at such times to a difference of temperature of from 100° to 120°.

The following will indicate the degree of cold experienced during part of the first quarter of 1876:—

With the exception of 12 days, the mercury was frozen with a range of temperature between 48° ·58, and 68° ·88 minus, from the 20th of January till the 11th of March.

Between 10 a.m. February 29th, and 6 p.m March 5th the mean temperature was 66°·29 minus.

Between 7 p.m. March 2nd, and 6 a.m. March 4th, the mean was 69°·93 minus.

Between 5 a.m. March 3rd, and 4 a.m. March 4th it was 70°·31 minus.

The lowest temperature registered was on March 3rd, when the spirit fell to the extraordinary depth of −73°·72 (corrected).

The temperature for the six winter months was as follows:—†

	Minimum	Maximum	Mean
October	−31°	+21°·2	− 4°·080
November	−45	+23	−17
December	−46·5	+35	−23·08
January	−58·7	+ 8·5	−33·69
February	−66·3	+ 2	−38·29
March	−73·7	+ 3	−40·01

It was deemed prudent not to send the men on the floe for a few times owing to the wind or cold.

In the autumn of 1875 sledging parties were sent out. Lieutenant Pelham Aldrich with three men and a dog-sledge, attained to Latitude 82°50′ north on the 28th of September. Commander Markham, Lieutenants Parr and May, with Sub-Lieutenant Egerton, three 8-man sledges, and one 5-man sledge, laid out depots of provisions, and boats, to help on the spring travelling, while Lieutenant Rawson with an 8-man sledge twice endeavoured to discover a practicable road to the "Discovery."

We may be said to have commenced our long winter on the return on board of the sledges on the 14th of October. We passed it well and cheerfully, we generally had penny readings once a week, with a lecture from on officer, diversified occasionally by theatrical performances, scenes from the magic lantern, and conjuring tricks. We had

* With an average of 80 feet.
† Subject to correction.

a good share of music from the piano, flute, concertina, accordion, &c., and plenty of games of different kinds, with a good library. Schooling was carried on for five evenings a week, and bodily exercise taken on the floe daily, generally in the performance of some work.

On April 3rd, the principal sledging parties left the ship, Commander Markham and Lieutenant Par, with 17 men, having three sledges and two boats, and supported for some distance by Surgeon E. L. Moss, M.D., and Mr. G. White, engineer, with two 8-man sledges, endeavoured to force a passage across the frozen sea towards the Pole. After undergoing severe work in combating with almost impassable ice, they with great perseverance attained to Latitude 83°20′26″ north, the highest northern position yet reached. They were absent from the ship 72 days. Lieutenant Aldrich with an 8-man sledge, supported for a considerable distance by Giffard with an 8-man sledge also, traversed the shore, reached the northern point of Grant Land at Cape Columbia, in Latitude 83° 7′, and then travelled west and south, making on the whole 220 miles out. His party returned to the ship in 84 days.

In the meanwhile several sledge parties left this vessel, commanded by Captain Nares, Lieutenant May, Surgeon Moss, Sub-Lieutenant Egerton, and Mr. James Wootton, Engineer, either to lay out provisions for returning parties, or for exploring and scientific purposes.

Captain H. W. Feilden, R.A., succeeded after a good deal of labour, while away with sledges, or nearer home, in making a very fine Natural History collection.

Only three persons of this ship took no part in sledging, and on an average the men were away over 60 days each.

Lieutenant Beaumont and Surgeon Richard Coppinger, M.D., with two 8-man sledges, came up from the "Discovery" in April, and from this ship, in company with Lieutenant Rawson and a 5-man sledge, crossed Robeson Channel, and traversed the shore of Greenland to the eastward, Mr. Beaumont proceeding furthest. Captain Stephenson arrived on board this vessel in April, accompanied by Mr. T. Mitchell, Assistant Paymaster, and three men, with a dog-sledge. He left again in a few days for his own vessel.

I am not aware of the detail of the sledging that took place from the "Discovery," but as far as I know I believe nearly all the officers and men were engaged—that Lady Franklin Sound was found to be closed, and Petermann Fiord ascertained to have a great glacier at its head.

At Polaris Bay Captain Stephenson erected a monumental brass plate over the grave of Captain Hall.

In July we killed close to the ship four musk ox, and two more a few miles further north. During the summer we were enabled to get some hares, ptarmigan, and duck, and while on our way south some geese, but on the whole our supply of fresh meat was small. From the time of entering winter quarters but 14 days' fresh meat (including some English mutton we had with us) were given to the whole ship's company for 10 months, and up to the present time 28 days' fresh meat to all. The extended sledge parties could procure no game. A few of the minor ones were more fortunate—the sick were fairly provided for.

Bones of the musk ox were found between our winter quarters and Cape Joseph Henry, as was also a narwhal's horn. About us were seen the hare, wolf, long-tailed duck, ptarmigan, snow bunting, lemming, and we were fortunate in securing some of the young of the knot, showing such birds breed here. Some ermine were got also, insects, and specimens of marine invertebrata, also a few trout from a lake. The floe-rat seal was seen; vegetation was not by any means abundant—a little dwarfed scurvy grass was seen, and some stunted sorrel procured. The most northern flower seen was the poppy, and the most northern animal the hare.

The land all the way up Smith Sound, Kennedy Channel, and Robeson Channel, is evidently rising, and the Atlantic and Pacific, or Polar tides, meet at a varying point about Cape Frazer. Drift wood was found in great abundance. To reach the North Pole has been found impracticable to us, yet a most gallant attempt has been made to get as near it as could be.

The highest northern land on the west side of Robeson Channel, and along the borders of the Polar Sea has been rounded; the north end of Greenland has probably been seen and nearly reached, Robeson Channel has been opened up into the circum-polar Sea (which to us appeared an impenetrable frozen mass of ice of enormous thickness, impassable to any great distance by sledges) and most valuable information has been obtained on scientific subjects by men who in ships and sledges have advanced further to the north than has ever been accomplished before, as far as is known.

But all this work has not been accomplished without sickness and loss. Scurvy broke out in the spring amongst some of the sledge crews. All Commander Markham's men were attacked, five having to be eventually carried on the sledges. One man, George Porter, G.R.M.A., after manfully working as long as he could, had to be carried for a long way, but died ere assistance could be had. The others were helped in by a relief party, for whose aid Lieutenant Parr walked over a very bad road continuously, for nearly 40 miles. All Lieutenant Aldrich's men were also attacked more or less severely, and received assistance. While away on his second journey Lieutenant Giffard had two men ill. The other cases took place after the return of men on board. On the Greenland side, Lieutenants Beaumont and Rawson's parties were attacked, and two men of the "Discovery" died, after reaching Polaris Bay. They were James Hand, A.B., and William Paul, A.B.

The men of this ship belonging to Commander Markham's and Lieutenant Parr's parties received most prompt assistance from Dr. Moss, who made use of the medical comforts I despatched with great benefit to the sick ere their return. When brought on board they, with others (including Lieutenant Aldrich's men, who got back later), were carefully treated and looked after, though to treat 27 men at one time, some of them very bad, was not easy in a small ship, and for a time I had heavy work to perform, aided by my colleague. Altogether 38 cases of scurvy came under my care, and all, by God's blessing, recovered. I was enabled to give the worst cases, first and last, 45 days' fresh meat. This last was aided greatly by the excellent medical comforts and lime juice at my disposal. A detail of the outbreak, its progress and results, will be found in the Nosological Returns.

The kind and considerate treatment of their men, exhibited by the officers in command, and otherwise, of sledge parties, is deserving of great commendation, and doubtless greatly served to help forward the work of the medical officers.

I have endeavoured in the Nosological Return for Midsummer Quarter to account for the appearance of scurvy amongst the crew of this ship. The remote cause was, I believe, the absence of fresh vegetable food, though to remedy this, lime juice was given out under inspection daily, and preserved vegetables were eaten. The want of fresh meat may also, I believe, be accounted a remote cause. The absence of lime juice and of fresh vegetables or game amongst the extended sledge parties doubtless tended to detrimental results. Any one or more of the following may have acted as a predisposing cause or causes :—Our long and dark winter, the confinement between decks in a damp atmosphere for the long period I have mentioned, the extreme changes of temperature undergone during the prevalence of the great cold. The exciting cause I can only attribute to the heavy physical work undergone. The passage over the frozen sea was of the heaviest description. Roads had to be made with pickaxes ere the sledges could be drawn through, a mile or a mile and a-half made good being considered a good day's work. I believe, on the Greenland side also extremely heavy roads were encountered. Robeson Channel was crossed by sledge parties of both ships 22 times. I think none but the most carefully selected men could have accomplished what has been done. The sick men of the "Discovery" made a good recovery under the skilful treatment of Staff Surgeon Belgrave Ninnis, M.D., and Surgeon Richard Coppinger, M.D.

During the autumn sledging from this ship several frostbites occurred. The snow in places was up to the men's waists, and they were exposed to a good deal of wet. It was found necessary to remove part of the left great toe of Lieutenant May, and of the right of Thomas Oakley, G.R.M.A., as also the right great toe of James Self, A.B. All made a good recovery, notwithstanding the confinement to which they were subject, and performed excellent service in the spring and summer in sledging.

In a fruitless attempt to communicate with the "Discovery" in March, by means of a dog-sledge, under Sub-Lieutenant Egerton, accompanied by Lieutenant Rawson and Neil C. Petersen, interpreter for the Esquimaux language, the latter was most severely frost-bitten in the hands and feet, besides being prostrated by the cold. The officers, following the medical instructions given them, succeeded in restoring the circulation more than once, but they could not keep up the warmth in the body. They consequently determined to return to the ship, which they did after four day's absence. On examining Petersen, I found the feet frozen and geled, as also the hands and fingers. The lungs were congested. Under careful treatment, circulation was restored in the hands and in the hinder parts of the feet, but the fore parts of the latter were destroyed. As soon as the patient's state of health permitted, I removed by amputation all parts in front of the tarsal bones of both feet. The patient did well for a time, the affected parts assuming a good action; but the confinement, and perhaps want of fresh food—though I gave him all I could, besides any medical comfort necessary—told detri-

mentally on him, and, notwithstanding every care and attention, he succumbed and died, two months after the receipt of his injuries, from sheer exhaustion, probably partly induced by scorbutic taint.

Independent of the diseases and accidents caused by sledging, the amount of sickness that has taken place on board has been small.

From April 15th to September 1st, 1875, when we entered winter quarters, six admissions to the sick list took place. From the latter date till after the sledges left the ship on April 3rd, 1876, 17 ordinary cases came on, viz., 3 in September, 7 in October, 1 in November, 2 in December, 2 in January, 1 in February, and 1 in March. From April 3rd to October 1st (nearly 6 months) 5 ordinary cases were admitted. The frost bites numbered on the whole 15, and scurvy 39 cases.

Monthly medical inspections were held during the winter, and the reports of such were always favourable. The day after the sun returned, on the 2nd of March, there was no person on the sick list. The monthly reports after the scurvy broke out became much less favourable, though they improved in time. For a period of 7 weeks, viz., from August 1st to September 21st, 1876, there were no admissions, and on leaving the ice on September 9th, the sick list was clear. All examined for sledge work at the end of March, felt well and anxious for work. On July 31st, 1876, this ship broke out of winter quarters, and after a tedious and dangerous passage (during which she was twice nipped) we arrived in Discovery Harbour on the 13th. This ship and the "Discovery" left on the 18th, on the evening of which day our rudder got split by the ice. It was repaired next day, and on the 20th both ships proceeded to the southward. The passage south was equally difficult and hazardous to that going north, when it seemed as if we would be caught for another year. We got clear of the pack off Victoria Head,* on the 9th of September; we encountered head winds for the most part from this time forward, took shelter for a short while in Bardin Bay, passed to the westward of Melville Bay without meeting the pack, and arrived in Godhavn Disco on the 25th, where we procured some salmon and cod. This ship coaled, and both vessels shifted rudders. Leaving on the 27th, we got to Egedesminde on the 28th, where the "Discovery" coaled, and we procured a few pounds of reindeer flesh and some cod. Left the last named place on the 2nd of October, and after a boisterous passage, during which we met the "Pandora," and had to depend upon a damaged rudder, we arrived in Valentia Harbour on the 27th.

Owing to the change of climate and the bad and wet weather, several cases of catarrh occurred since leaving Disco.

I beg to bring to your favourable consideration the services of Surgeon E. L. Moss. This officer exhibited much skill and promptitude in dealing with the cases that came under his care. His advice was valuable to me during the heavy work I had to perform after the scorbutic cases were brought on board. He took part in sledging, both as a medical officer and in command, and he has been indefatigable in his researches into chlorinometry and the specific gravity of ice and sea water, as also into marine invertebrate zoology.

I trust to have the honor of laying before you in the future, observations made by me on the presence of ozone in the atmosphere, on solar and terrestrial radiation, and on clothing, food, and hygienic matters in general, connected with the crew and ship.

When this ship was last in harbour (at Egedesminde) with the "Discovery," Dr. Ninnis informed me that the health on board his vessel was very satisfactory.

I have the honor to be,
Sir,
Your most obedient Servant,
THOMAS COLAN, M.D.,
Fleet Surgeon.

Sir Alexander Armstrong, K.C.B., LL.D., F.R.S., &c.,
Director General.

---

* This ship having travelled 604, and the "Discovery" 470 miles through pack ice.

STAFF-SURGEON NINNIS. LETTER TO DIRECTOR-GENERAL OF THE MEDICAL DEPARTMENT, 26TH SEPTEMBER, 1876.

H.M.S. "Discovery," at Disco.

Sir,

I have the honour to forward the Nosological Returns from the 1st of July, 1875, to the 30th of June, 1876; likewise the cases of two men, James Hand, A.B., and Charles William Paul, A.B., both of whom died from scurvy in June last.

Not printed.

My last communication was transmitted from Upernivik on the 22nd of July, 1875, which place we left the same evening, and after meeting with the usual difficulties of ice navigation, arrived on the 25th of August at latitude 81°44′ north, and longitude 64°45′ west, where we took up a position in a sheltered bay at the entrance of Lady Franklin Sound, on the north side of Robeson Channel, and prepared to winter. On the 6th of September we were frozen in. The sun appeared above the horizon for the last time on the 16th of October, and was absent 136 days, not reappearing until the 29th of February, 1876. The spring sledging, at which all the officers and crew, with very few exceptions, took part, commenced at the end of March, and continued until the 15th of August, at which time the last detachment arrived on board. On the 20th we started in company with the "Alert" on our way to England, called at Cape Isabella on the 9th of September, where we found a few letters and papers, and arrived at Godhavn, Island of Disco, on the 25th of September.

Every effort was made to preserve the health of the crew, and to alleviate as much as possible the monotony of the dreary winter. A newspaper was printed periodically. Theatricals and concerts, popular lectures and magic lantern entertainments were of frequent occurrence; and to induce outdoor exercise, a skating rink and a recreation ground were formed; in addition to which everyone was compelled to be outside the ship for a certain time each day, so as to thoroughly ventilate the lower deck.

The percentage of carbonic acid, both between decks and in the open air was ascertained weekly by Dr. Coppinger, the results of which examinations will be found in our journals for 1876.

The following table shows the range of temperature in the several months between decks and in the external air. The observations were recorded by myself, Captain Stephenson having requested me on leaving England to superintend the Meteorological Department.

1875.

	External Air.			Between Decks.			Thickness of Ice.
	Max.	Min.	Mean.	Max.	Min.	Mean.	
September	+43°	+ 2°	+18·7°	+66°	+40°	+58°	On 30th, 10·5 inches.
October	+21·5	−39	− 9·05	+65	+33·5	+52	„ 31st, 16·6 „
November	+18·9	−46	−17·75	+69	+43	+60	„ 30th, 20·6 „
December	+26	−54	−24·5	+69	+43	+58	„ 31st, 24·7 „

1876.

	External Air.			Between Decks.			Thickness of Ice.
	Max.	Min.	Mean.	Max.	Min.	Mean.	
January	−13°	−63°	−40·6°	+69·5°	+41°	+ 60°	On 31st, 28·75 inches.
February	+ 2	−58	−35·2	+65	+41	+58	„ 29th, 31 „
March	− 8	−70·75	−37·5	+63	+42	+56	„ 31st, 36·5 „
April	+15	−42		+59	+26	+48	„ 30th, 39·25 „
May	+33·6	−20·5		+57	+34	+49	„ 31st, 38 „
June	+41	+16·5		+66	+41	+56	
July	+46·3	+29·6		+66	+47	+58	
August	+51	+19		+69	+49	+61	

As the immediate neighbourhood of our winter quarters yielded a large supply of musk oxen, a ration of a pound and a half of good beef per man was issued twice, sometimes three times a-week, during the whole winter, which beef, although occasionally powerfully redolent of musk, as a rule was looked upon as a welcomed substitute for the usual preserved and salted provisions.

I regret that we were unable to carry out any of the suggestions contained in the letters of Dr. Carpenter and Dr. Parkes, and forwarded by you to Dr. Colan, Fleet-Surgeon H.M.S. "Alert," on the 27th of May, 1875; but Dr. Colan, considering that any attempt to carry out the suggestions therein contained would be prejudicial to the health of the men experimented on, did not think it necessary to forward your letter and its enclosures to me. I was consequently unaware (until May, 1876) of the existence of the suggestions in question.

On referring to the Nosological Returns, it will be seen that sixteen cases of scurvy have occurred. Fifteen of these were attacked when sledging in northern Greenland, and of this number six, although belonging to the "Discovery," were embarked in the "Alert" in August, 1875, starting thence on the sledging journeys, and not rejoining the "Discovery" until the end of the season of 1876. As I am given to understand that fresh meat was not nearly so plentiful on board the "Alert" as with us, on account of the scarcity of musk oxen and other game, I think it fair to refer our comparative freedom from this scourge to that circumstance.

Dr. Coppinger was appointed by Captain Stephenson to the command of one of the sledges belonging to the North Greenland division. He left the "Discovery" on the 6th of April, and did not return until the 15th of August. It was decided that the whole division should rendezvous at Polaris Bay early in June. On arrival there, Dr. Coppinger was informed of the outbreak of scurvy, of the death of James Hand, A.B., and of the illness of some others. He immediately established a hospital tent, and with the means at his disposal prepared to treat the patients as they arrived, they not being in a condition to bear removal to the ship. As soon as two or three were strong enough they came over with a dog-sledge to inform us on board the "Discovery" of the condition of the remainder, Captain Stephenson immediately started to their assistance, taking medical stores and such things as I thought requisite; but it was mainly due to the zeal and energy of our Esquimaux, Hans, who procured large quantities of seal meat, most excellent diet for scurvy patients, that the last of the party was enabled to cross Robeson Channel in time to start on our homeward journey this year.

Dr. Coppinger travelled over about 490 miles, and was in charge of the sick at Polaris Bay from June 7th to August 8th. My views relative to this outbreak will be found in my journal; in the meantime I consider the hopeless and monotonous nature of the work, its exceeding severity (far more so than that experienced in any other expedition), and the total absence of game during the sledging, sufficient under existing circumstances to account for it.

The only fresh vegetables procurable were sorrel (*Oxyria reniformis*) and mustard and cress. Of the former a fair supply could be gathered at our winter quarters after the snow had cleared away.

In February I sowed some mustard and cress, but having to be kept between decks in the dark, it was not fit for use until May, when I obtained about 7 rations. As soon as the sun gave forth light and heat, I enclosed a space of ground on shore, 16 by 3 (feet) and glazed it with spare glass supplied for the engine room. Seed was sown on the 29th of May, and the first crop gathered on the 21st of June; from this date until the 14th of August I was enabled to supply not only the sick every day, but the whole crew on eleven occasions. Had we remained I have no doubt I could have kept up the supply until late in October, affording me at the same time healthful amusement in the open air.

I likewise succeeded in growing peas and wheat, and celery seed sprouted, but we left before it had time to come to maturity. I consider that materials for erecting frames similar to cucumber frames would be very useful if supplied to a similar expedition.

I likewise consider that medicines should be as far as possible in the form of capsules for convenience of carriage, and not necessitating bottles, thereby reducing the weight to be carried on a sledge.

The medicine box and appliances designed by me for the use of the "Discovery" sledge parties weighed a little over six pounds.

I have the honour to be,
Sir,
Your obedient Servant,
BELGRAVE NINNIS, M.D.,
Staff Surgeon, H.M.S. "Discovery."

Sir Alexander Armstrong, K.C.B.

LETTER FROM SECRETARY OF ADMIRALTY TO COMMANDER-IN-CHIEF, PORTSMOUTH.

ADMIRALTY,
3rd November, 1876

Sir,

I am commanded by my Lords Commissioners of the Admiralty to acquaint you that they have had under their consideration the Report of the Proceedings of the Arctic Expedition under the command of Captain Nares, dated 27th ultimo, and I am to direct you to express to that officer their Lordships' warm approval of the conduct of all engaged in that important service.

2. My Lords have noticed with satisfaction the able manner in which the preliminary proceedings of the expedition were conducted, and they consider that its Commanders had just reason to be satisfied with the high northern positions which they were enabled to attain for the winter quarters of the ships.

3. The arrangements for the comfort of the crews during the long and tedious winter of the desolate region which they had reached, appear to have been very complete, and my Lords observe with pleasure that when the season for travelling arrived, the officers and men were healthy and vigorous.

4. My Lords have read with much interest the details of the sledge journeys which were undertaken in the autumn of 1875, and the early spring of 1876, both in furtherance of the special objects of the expedition, and to give some training to officers and men, who were for the first time brought face to face with the hardships of Arctic life. My Lords much regret the sufferings endured by officers and men on those journeys, and especially they deplore the loss suffered by the expedition through the illness and lamented death of Christian Petersen.

5. The preparations for the advance to the northward, and for the exploration of the coasts east and west of the Alert's position, appear to have been made with care and foresight, and great precaution seems to have been taken to ensure as much success as possible.

6. My Lords have remarked with admiration the energy, perseverance, and endurance displayed by the officers and men employed on those arduous journeys, and they feel that high commendation is due to them. The difficulties to be encountered were of the gravest character, and my Lords do not doubt that if those difficulties could have been surmounted by unflagging determination and disciplined effort, one of the main objects of the expedition, namely, a near approach to the pole, would have been attained.

7. Notwithstanding, however, that it was found impossible for the sledging parties to attain a much higher latitude than that reached by Sir Edward Parry, the addition to geographical knowledge has been considerable. The conjectural open sea to the north of Smith Sound, and the land assumed to be there, have been proved not to exist. The coast line of the northernmost land yet known, adjoining the American continent, has been accurately charted for 220 miles. The north coast of Greenland has been examined for 80 miles, and traced as far as Cape Britannia in Lat. 82° 54′ N, Long. 48° 38′ W. The western shores of Smith Sound have been corrected in detail; and, lastly, the question of the possibility of reaching the Pole by way of Smith Sound has been set at rest, whilst a higher Latitude than any hitherto attained, viz., 83° 20′ 26″, has been reached.

8. Such results in a region where the obstacles to travelling are so great could not have been arrived at without much hardship, and my Lords regret that the sledge parties had to endure in addition serious attacks of scurvy. The causes of the outbreak of this disease have been noticed by Dr. Colan in his report to the Medical Director-General, but their Lordships not having as yet received from that officer his observations thereon, refrain at present from expressing any opinion on the subject. The leaders of the detached parties report most favourably of the exemplary patience and fortitude displayed by all under their command, and whilst my Lords deeply commiserate the sufferings of those gallant men, and deplore the loss of life amongst them—Charles W. Paul, A.B., James Hand, A.B., and George Porter, R.M.A., having succumbed to the hardships to which they were exposed—they cannot but feel that their bearing and conduct have been in all respects worthy of British seamen.

9. I am also to remark that when the hardships of travelling were over, a fresh period of difficulty occurred, namely, of freeing the ships from their ice-bound quarters,

a result which, after thirty days of constant struggling with ice and wind, was happily attained.

10. My Lords have noticed with approval the sound judgment displayed by Captain Nares in at once, on the return of his sledge parties, determining to endeavour to extricate the ships and proceed to England, and they observe that his skill and energy in carrying out this determination, ably seconded as he was by Captain Stephenson, were of the highest order.

11. My Lords have been much gratified by Captain Nares's assurance of the great value he set upon the services of the Medical officers, of whose watchful care over the health of the expedition, and kind and skilful treatment of the sick, he speaks in the highest terms.

12. My Lords have not as yet received any detailed account of the purely scientific results attained, beyond those appertaining to Hydrography, but from Captain Nares's report they are prepared to find that very valuable work has been accomplished. Their Lordships will communicate to the War Department Captain Nares's opinion of the services and merits of Captain Feilden, R.A.

13. To mark their appreciation of the conduct of all employed in the expedition, my Lords have had much pleasure in making the following promotions :—

Commander Albert Markham, to be Captain.
Lieutenant Pelham Aldrich, to be Commander.
" Lewis E. Beaumont, to be Commander.
" Alfred A. C. Parr, to be Commander.
Sub-Lieutenant Crawford J. M. Conybeare, to be Lieutenant.
Staff Surgeon Belgrave Ninnis, M.D., to be Fleet Surgeon.
Surgeon Edward Lawton Moss, M.D., to be Staff Surgeon.
" Richard W. Coppinger, M.D., to be Staff Surgeon.
Engineer Daniel Cartmel, to be Chief Engineer.
" James Wootton, to be Chief Engineer.
Assistant Paymaster Thomas Mitchell, to be Paymaster.

And they have directed that the services of the following officers be favourably noted :—

Fleet Surgeon Thomas Colan, M.D.
Lieutenant George Giffard.
" Wm. H. May.
" George Le Clerc Egerton.
" Robert H. Archer.
" Wyatt Rawson.
" Regd. B. Fulford.
Engineer George White.
" Mathew R. Miller.

On receiving Captain Nares's report of the petty officers and seamen who are specially worthy of advancement, my Lords will not fail to bestow on them further marks of their approbation.

14. In conveying this expression of their approval of his proceedings to Captain Nares, it is their Lordships' wish that you should direct him to communicate the same to the officers and men of the expedition, with whose perseverance, fortitude, determination, and general conduct, my Lords have every reason to be satisfied.

I am,

Sir,

Your obedient Servant,

ROBERT HALL.

Admiral Elliot,

&c., &c., &c.,

Portsmouth.

"PANDORA," CAPTAIN ALLAN YOUNG. LETTERS OF PROCEEDINGS TO SECRETARY OF ADMIRALTY, 19TH JULY. 1ST NOVEMBER, 1876. LETTER FROM LIEUTENANT C. R. ARBUTHNOT TO CAPTAIN YOUNG, 25TH SEPTEMBER. COPIES OF RECORDS DISCOVERED. LETTER FROM SECRETARY OF ADMIRALTY TO CAPTAIN YOUNG, 10TH NOVEMBER.

Arctic Yacht "PANDORA,"
Kudlisœt, Waigatz,
North Greenland,
July 19*th*, 1876.

Sir,

I have the honour to report, for the information of the Lords Commissioners of the Admiralty, that the "Pandora," under my command, left Plymouth June 2nd, and arrived at Disko, midnight, July 6th, after a tolerably fair passage, under canvas alone until entering the port of Godhavn.

2. I remained at Godhavn watering, re-stowing stores, &c., until the evening of the 11th instant, when I sailed and arrived here midnight of the 12th, having touched at Uyarrasusuk to bring up some natives to assist in coaling.

3. I hope to complete coaling to-night, and then to proceed northward, touching perhaps at Upernivik or Proven for communication only.

4. The ship is in perfect order, and we have not experienced the slightest hitch or mishap. We have dogs on board, and after receiving 40 tons here, we shall leave with 170 tons coal.

5. I enclose a tracing of our outward track, and their Lordships will observe that we had the winds fresh from the westward until off Bantry Bay, then, northerly, followed again by strong winds from westward, with which I pushed to the northward as fast as possible until 14th June, when we encountered a violent storm N.N.W. for 48 hours. We then had variable winds to the 22nd, ending in E.N.E., strong, with thick rainy weather to the 27th (ran through ice in a gale on the 25th). Thence to N.N.W. winds, steady, against which we beat up the coast to the "Whalefish Islands," where we made steam and entered port.

6. The Royal Danish Greenland Company's store-house, together with its contents of oil, and the United States Government (Polaris) stores was totally destroyed by fire on June 17th, the store-house having accidentally taken fire in boiling oil. At the request of the Governor, Lieutenant Arbuthnot, and myself, made a survey and a report upon this casualty.

7. I have the pleasure to inform their Lordships that Lieutenant Arbuthnot, R.N., and Navigating Sub-Lieutenant Pirie, R.N., are very zealous in the discharge of their duties. They have also made a complete set of magnetic observations with the Jones and Fox instruments at Godhavn. I have an excellent and zealous staff of officers, and a very good crew, who seem all most desirous to do their utmost.

8. Their Lordships may rely upon my making my best efforts to carry out their desire that I should communicate with the depôts or points named in their instructions to me, and I shall lose no opportunity of keeping their Lordships informed as to my movements, and upon all matters of interest during our voyage.

9. In the event of there being any risk of my being unable otherwise to communicate with their Lordships, I shall endeavour to send an officer to England this autumn.

10. It is perhaps unnecessary to remark that no information has been received on this coast of the Polar ships since their departure, or since the news brought from the Carey Islands in September last by the "Pandora."

11. This letter will probably go by the Danish Company's ship "Northern Light," which has not, however, yet arrived. She left Copenhagen May 4th, with the Inspector of North Greenland on board, and is the first ship of the season to visit Godhavn and Upernivik, returning to Denmark in September.

I have the honor to be,
Sir,
Your obedient Servant,
ALLEN YOUNG,
Commander, Arctic Yacht "Pandora."

The Secretary to the Admiralty,
London.

FALMOUTH,
Nov. 1*st*, 1876.

Sir,

I have the honour to forward you for the information of the Lords Commissioners of the Admiralty, the following report of my proceedings in the "Pandora" subsequent to the 19th of July, the date of my last communication.

We left Upernivik the same evening, and passed the Duck Islands on the 21st, having been much embarrassed between the reefs and islands by a thick fog. We here met streams of ice, and the fog continuing with a strong N.W. wind, I made fast to a large floe, but the ship breaking adrift in the night, we stood to the N.E. under low canvas, passing much ice and innumerable bergs.

On the 22nd the wind changed to the southward, and the sky partially cleared. Wilcox Head bore east 15 miles, and we commenced threading our way to the W.N.W.

During that afternoon and night we had a fresh gale from S.E. with thick weather, and the barometer having fallen to 28·90, warned us of an approaching storm. We continued running under reefed sails through vast fields of ice, having frequently to alter our course, or bring the ship to the wind to clear the floes and bergs.

On the following morning (the 23rd), finding that we were apparently entering the main pack, I came out again 15 miles S.S.E. under steam, and as the thick snow prevented our seeing any distance, I there made fast to a floe in what appeared to be a large space of water. We saw nothing more until the morning of the 24th, when I found that we were quite surrounded, but with much water in the southward, from which we were shut off by a barrier of about 2 miles in width. This was in Lat. by account 75° 10′ N.; Long. by account 62° 7′ W.

No time was lost in endeavouring to effect our escape, by forcing this block with all the steam we could command, and we were making gradual progress, when the whole body of ice in which we were beset drifting before the gale, came in contact with a group of grounded bergs and caused the ship to be so severely nipped, that at 3 p.m. I ordered every preparation to be made in the event of our having to abandon her. Provisions, ammunition, camping, and travelling gear, &c., were all made ready, and the boats were loaded as far as possible at the davits, ready to be lowered at a moment's notice; the violence of the weather, and of the commotion of the ice, rendering it imprudent to put anything upon the floe until the worst should arrive.

During all this time we continued blasting the ice around the ship with heavy charges, and thereby relieved her considerably at the points where she was most severely pressed. We were thus held in suspense until 8 p.m., when the bearings of the icebergs having altered, and the extreme pressure easing off, the ship came almost upright, and began to settle down to her proper level of floatation.

In the meantime the ice had accumulated in the southward, and the storm continuing, we were drifted helplessly with the pack, and owing to the constant snow and sleet, we saw but little more until the 27th, when the weather cleared, and we obtained observations for the first time since the 20th, placing us in Lat. 75° 44′ N.; Long. 62° 20′ W. We had thus driven up into the heart of Melville Bay, and could see no water from the crow's-nest. The ice was closed tight up in every direction, and presented all the appearance of a winter's pack. It was a beautifully clear afternoon, and we had Capes Walker, Melville, the Peaked Hill, and the intervening glaciers all distinctly in view.

On the 28th, the whole pack driving westward, and through some more grounded icebergs, a narrow lane of water formed in their rear, into which we managed to force the ship, and succeeded in making about 5 miles to the S.S.W., the continuous flights of the little auk passing and repassing having convinced me that the nearest open water lay in that direction. We were, however, unable to move the ship, excepting in her dock, to relieve her of projecting points. The same night another storm commenced to blow furiously from E.S.E., and the whole pack drove rapidly to the westward, carrying us through a line of bergs, and nearly in collision with one of enormous size which we had seen in the morning 12 miles to the westward of our position.

On the 29th, the wind S.S.E., blowing a gale with snow, the pack was still driving to the westward. By the afternoon we could see from aloft some water in the S.W., but although we made every effort, we were unable to move the ship until 7 p.m., when the wind changed to S.W., sending a sensible range into the pack. The ice began to slacken, and by putting on all steam we forced the ship into the water, and effected our escape by 9 p.m., in Latitude 75° 50′ N., Longitude 64° 55′ W., thence we stood away to the westward in a clear sea. During this detention we killed only one polar bear, four seals, and some little auks.

We passed Capes Dudley Digges and Athol, as near as the off-lying ice would admit, on the morning of the 31st, having been again hampered by thick weather, and by noon we were off Wolstenholme Island, when another gale commenced from the southward, and increased rapidly to almost hurricane force. Unable to obtain shelter on the coast from the number of bergs and wash pieces, we lay to under storm canvas all night, the spray and snow-drift preventing our seeing any distance, and in order to avoid collision with the icebergs, the ship having to be frequently kept away we were boarded by several heavy beam seas, which smashed our first whale boat, filled the decks, and washed all our deck load adrift.

On August 1st the gale moderated, and I steered for the S.E., Carey Island, as I was desirous of examining Captain Nares' depôt of provisions, to enable me to report upon its condition. We arrived at the island at noon; and at 4 p.m., the sea having subsided sufficiently, Lieutenant Arbuthnot landed, and reported on his return at 7 p.m. that the depôt was found in good order, and the cairn unvisited since I was there on September 10th last year.

We now bore away to the northward, and with a fine clear night passed Hakluyt Island. The following forenoon, when in Latitude 77° 46′ N., we made the pack on our port hand, trending from S.W. to N.E., as far as visible in the direction of Cape Alexander. I had expected, from the prevalence of southerly gales, to find that much ice had been driven north this season; but I was not prepared to meet this great pack so soon, or extending so far out from the west land in this position.

See page 477. We stood direct for Sutherland Island, and a party left the ship on our arrival, and returned at 11 p.m., having found a record of Captain Hartstene's, U.S. Navy, dated August 16th, 1855, but no signs of the island having been subsequently visited.

Passing Cape Alexander at midnight, the pack was lying 2 miles off, with navigable water in Hartstene Bay, but the straits all full of heavy ice in the west and north.

August 3rd, as we approached Littleton Island, we saw two cairns. The ice lay close on the south-western point, but apparently slack on the mainland and in the narrow passage between the main and the island. I therefore steamed through the channel, and anchored in a small opening between Littleton and McGary Islands. Having moored with warps to the ice-foot still attached to the rocks, Lieutenants Arbuthnot and Becker hurried on shore to search the cairns. Shortly after their departure the ice began driving from the westward through our anchorage, and so continually fouled our warps, although they were taken to the mastheads to clear it, that by 7 p.m. we were fairly driven out stern foremost, not having room to turn the ship round. I had, in the meantime, landed a boat and camping gear for our absentees, in the event of our being driven away from the island; but having succeeded in lying close under the N.E. point, we had the satisfaction of seeing them crossing the hill, and shortly afterwards of receiving them on board. They brought a record, dated July 28th, 1875, from Captain Nares' cairn, and a closed letter addressed to C. Markham, Esq.

See page 478. It was evident from Capt. Nares' record that we must next attempt to reach Cape Isabella, which, however, in the present condition of the ice (the straits being packed full in every direction) was quite impossible to do. I therefore decided to take advantage of the delay, by examining the coast in Hartstene Bay, in accordance with their Lordships' desire that I should seek a harbour for the relief ship to be sent out in 1877, if the Polar Expedition did not return earlier.

We first examined Julia Glen, and thence sounded in to Port Foulke, but found deep water close up to the head. It is a mere indentation in the land, partially sheltered by three small islands, but exposed to the W. and S.W. I cannot recommend it, unless at the close of the navigable season, for a very small ship, intending to winter, to run into the young ice and be frozen in immediately.

Entering Foulke Fiord, we got soundings from 17 to 7 fathoms, but with an irregular and rocky bottom, and thence deep water up to the small island, where the fast ice still remained across the Fiord to the Esquimaux huts of Etah. This fast ice was too decayed to moor to, and the pack threatening to come in, we proceeded out of the Fiord, and lay to for the night in Julia Glen.

This Fiord is also exposed to the westward, and were a ship to find anchorage in the upper part, and winter there, I think it might be late in the summer before the fast ice would break away, and set her free.

On August 4th, blowing hard from the south-westward, pack closing the land, and laready filling Port Foulke and Fiord, we stood round into McCormick Bight, and found regular soundings from 15 to 10 fathoms; and on passing the inner point we anchored in an excellent harbour, with 7 fathoms water and a good stiff mud bottom.

I can strongly recommend this harbour, to which I gave the name of our ship, the "Pandora" being the first to visit it. It has every advantage, easy to enter, good holding-ground, and sheltered from all points. A reef from Cape Kenrick, upon which the heavy ice grounds, gives protection from the westward. The only necessary precaution, if not intending to winter, would be to avoid being shut in, late in the season, when young ice is forming, by the drift-ice from outside.

Here will be found game in abundance at this season. The surrounding hills are dotted with Arctic hares, appearing like snowballs on the luxuriant vegetation. On the northern cliff, immediately over the anchorage, there is a breeding place of the little auks, where they assemble in thousands. Reindeer are in the neighbourhood, and eider fowl and black gullimots are numerous upon the water. I am confident that a ship arriving here early in August might, with organized hunting parties, obtain an ample supply of fresh food for the following winter.

It blew a heavy gale all night of the 4th, with violent snow-squalls over the high land, but we rode in perfect safety and comfort.

On August 5th the weather moderated. Navigating Sub-Lieutenant Pirie, Lieutenants Becker, and Beynan commenced a survey of the harbour, and I went upon the high land to view the straits. Some guns also went out to procure game. The prospect from Cape Kenrick was not very clear or encouraging; the straits in the north-west and north, round to Sunrise Point, were full of heavy floes. A mist hung over the ice in the west, but I saw that the pack was loosened in the direction of Cape Isabella; so, hastily returning on board, we weighed anchor at 4 p.m. Our sportsmen, who had hurried back on the recall being made, brought a quantity of hares and other game.

We steered across the straits with a fresh north wind, passing through the pack, and with some difficulty keeping the direction, owing to the necessary deviations of our course and the weak horizontal force of our compasses, but as we drew over on the west side the weather cleared, and, having set our close reefed topsails, we reached Cape Isabella at 3 a.m. Sunday, August 6th.

We soon observed a large cairn on the summit, but as we had now a gale from the north, with the tide or current, running 4 knots to the southward, and carrying blocks of ice past the rocks, it was 6 o'clock before we could place the ship in such a position as to enable the boat to land. Lieutenants Arbuthnot and Becker then immediately left with their crew fully provided with all necessary camping gear in case of need.

I was somewhat puzzled how to act for the best with regard to our despatches and letters, Capt. Nares having requested, at Littleton Island, that they might be landed at C. Isabella, or carried as far north as a ship intended to go. But as in the present condition of the straits and at this early season it was impossible to know what our future proceedings would be, or even if we could again visit the cape, and, moreover, the despatches not being in duplicate, I considered it for the best to land now the only loose letters, which seem to comprise some for nearly every member of the expedition, and to reserve the sealed bags until the landing party returned with further information. These letters were therefore packed in a cask, and sent in the boat to be deposited on shore.

In the meantime we had to keep steaming full speed to maintain our position against the wind, current and ice. At 1 p.m., having seen our boat coming out through the ice, and again some distance off upon the ice-foot, with no one in it, a relief boat was manned, but we soon saw our people rolling the cask of letters up the lower hill, about half a mile southward of the cape, when the recall was made, and by 4 o'clock *See page* 477. they all returned on board, and Lieutenant Arbuthnot handed me a copy of Capt. Nares' record. The original had blown from his hand in a gust of wind, and was lost in a valley of snow, the copy having, however, been fortunately secured.

I was too thankful to have our people safely on board after 10 hours' absence on such a stormy day, and on Lieutenant Arbuthnot reporting that he had found nothing on the lower hill excepting a depôt of provisions, and there being every appearance o water to the northward along the west land, we stood to the north-eastward under steam and fore and aft canvas. I was then glad to send below everyone who could be spared from the deck, most of us having been on duty during the last 36 hours.

At 9 p.m. we tacked, and stood into Baird Inlet, but finding it full of ice we came out again and continued northward until off Cape Patterson, when the main pack was seen to extend close home upon the land about Leconte Island, and on going to the crow's nest, I could see that heavy streams were already coming down before the wind, and also closing in from the eastward.

Having, in the meantime, carefully considered Captain Nares' record, and not feeling

satisfied as to what Lieutenant Arbuthnot had actually seen on Cape Isabella, and upon his assuring me that he had found four cases and one cask, but *no pemmican*, I concluded that this could not be a travelling depôt, that it was also too small for a retreating depôt, and moreover, from its being placed in the exact position in which it was stated the despatches would be found, it was extremely probable that the cask seen contained those very despatches we were looking for.

See page 476. I enclose Lieutenant Arbuthnot's own report of this visit to Cape Isabella, which I trust will make this matter clearer to their Lordships.

Our progress northward being stopped, I returned to Cape Isabella, arriving there at 3 a.m., August 7th. The ice had, however, already come in, and the northerly gale again increasing, I was unable, with full steam, to keep the ship sufficiently close, without the risk of her being forced upon the rocks.

Under these circumstances, and expecting every moment to be beset, and carried off to the S.W., or on shore, and considering the extreme danger of detaching a party from the ship, I gave orders for the boat to be secured, and stood off through the ice to the eastward.

It is unnecessary to give the details of our proceedings in the fortnight next following the 7th. I had decided to give up all idea of trying Peel straits this year, and to devote the remainder of the navigable season to endeavouring to revisit Cape Isabella, or to proceed northward if necessary and possible, or at least to cruise the straits until the close of the season, in the event of a boat party or the Polar ships arriving; either of which in the present aspect seemed very doubtful.

We continually crossed and recrossed the straits through the pack, always amongst ice, and keeping the ship constantly on the move to prevent our being beset. A boat and sledge were kept in readiness, and the officers constantly volunteered to attempt to reach the cape over the ice, but although we forced the ship on several occasions within a few miles of the cape, the stormy weather, the sudden fogs, and rapid movements of the ice, all rendered it impossible to detach a party from the ship with any reasonable prospect of their reaching the cape, or of rejoining the ship. The outer, or eastern edge of the pack, always presented one unbroken curve from the direction of Cape Dunsterville in the S.W. round to Cairn Point or Littleton Island, leaving a land-water in Hartstene Bay.

Into this water we always escaped when too hard pressed, and we were no less than three times (the 9th, 12th, and 22nd) driven into Pandora Harbour for a night's shelter.

During the first week the wind remained from the northward, and large unbroken floes began to come down, one of which, on the 9th, appeared to fill the entire straits from side to side, and had six large icebergs imbedded in it. I had hopes that this would prove to be the first instalment after the breaking up of Kane's Basin, and that the straits might soon partially clear out.

Once only, on the 15th, at the close of the north winds, the water made along the eastern shore as far as visible, and the hitherto persistent ice-sky in the N.W. changed to a darker hue. I immediately pushed in, and thought that we might get round into water north of the pack, but at midnight we came to the end of our lane, in Latitude 78° 45′ N., Longitude 73° 0′ W., and there found the pack solid, and trending round upon the land near Cape Inglefield. It was a brilliantly clear and frosty night, with the temperature at 24° Fahr., and we could see the land as far as Cape Scott on the east, and Cape Hawks on the west side. Several groups of walrus were lying on the ice, and we killed five of the largest size, yielding about 4 tons of flesh and oil.

On the 19th, having driven back to the northward of Littleton Island, I visited Polaris Camp in company with some of the officers. Nothing remained of the house beyond a few broken boards; the rocks were strewn with pieces of metal and fragments of clothing, &c. I searched for the cache in which the instruments and books were placed by the retreating party, but I only found, near its stated position, a brass bowl of a 7-inch compass, a tin tube which might have contained the pendulum apparatus, and parts of a telescope. We found no cairn, or any books or record. I collected a few relics, one being a lamp with "S. Buddington" marked upon it, and having left a record of our visit, we hastily embarked in our steam cutter, which carried us off through the heavy ice, against a strong southerly wind. There were no signs of any recent visit of the Esquimaux, but I noticed no less than five caches of walrus flesh, all in a putrid state.

On the 23rd, the weather continuing very boisterous, and fearing that in entering the pack we were at any time liable to be surrounded and carried away into Baffin's Sea, I considered it the best for all concerned to place the despatches and remaining letters on Littleton Island. Consequently I landed with Lieutenant Arbuthnot at 10 p.m., and

placed four cases and two casks in a cleft in the rocks on the western point, where they would be invisible to the natives, and we left a notice in Captain Nares' Cairn to that effect.

The following morning, after a stormy night, we were amongst the drift ice, and observed that the main pack had slackened in the direction of Leconte Island. We immediately steamed into it, and were able, although the weather was thick, to keep moving in that direction until 8 p.m., when we were close over on the west land, the summit of the island showing up above the mist. At 10 p.m. the fog lifted, and we found ourselves in a large pool of land-water, extending towards Cape Isabella. Going on full speed through some streams of drift and sheets of young ice, we arrived within a cable's length of the Cape on the morning of the 25th, just after midnight.

The rocks were quite clear of ice, but some floes were streaming round the land from the southward before the wind and the current which now ran to the north. The ship being placed close to the shore, Lieutenants Arbuthnot and Becker landed immediately to visit the lower hill, taking tools and bags to bring off the despatches, should the cask be found to contain them. They lost no time in ascending the hill, and returned safely on board after only an hour's absence. They reported that the cask was empty, and that the four cases contained preserved meat. It was now evident that no travelling or boat party had reached this position from the Polar ships, and that Captain Nares had deposited the cask on his outward journey as a receptacle for the despatches, in order to save its weight upon a sledge, had a party been sent.

We had now spent the best period of the navigable season in our endeavours to regain this depôt, and in proportion as the difficulty of doing so had seemed to increase, so had the necessity appeared to arise for re-examining the cask, and also the conviction that it had contained the despatches forced itself upon me, notwithstanding that I had fully weighed the improbability of any sledge party having been sent to the entrance of Smith Sound last spring, if the Expedition had succeeded in attaining the high latitude contemplated.

Although all our efforts had thus resulted in not finding here any despatches, we had at least deposited some letters at the appointed place, and I had the gratification of now feeling assured that the Polar ships had been so far successful in reaching such a distant position in the north as to have rendered it inadvisable to send a sledge party to Cape Isabella for a merely secondary object.

On the occasions of both our visits to Cape Isabella, I left full records of our proceedings, and on our second visit there a notice was also left stating that the sealed bags and despatches had been deposited on Littleton Island on the 23rd August. These notices were buried 20 feet magnetic north of the small cairn on the lower hill.

I again bore away to the northward under canvas. It was very dark and thick, but sufficiently clear to enable us to avoid the heavy ice. By 9 a.m. we were again up to Leconte Island, where we were stopped by a fog until 11 o'clock, when I could see from aloft that the main pack still extended across the straits into Rosse Bay. We were in a lake of land water, with close-packed and heavy ice all round from south to north, and again closing on the land from the eastward. Our only chance of moving seemed to be through a narrow lead, or slack place, running first to the E.N.E., and then again apparently towards the east coast. We entered the pack, and succeeded by 5 p.m. in again escaping into the land water in Hartstene Bay.

The navigable season was now fast drawing to a close, but it seemed too early to retire from the straits. I had decided to remain as late as possible, and as long as I could manœuvre the ship, although there was now no possibility of a boat party arriving; but I still had hoped that the Polar ships were on their way down, and that the ice might open and admit of their passing out. As, however, we could not now move the ship in any direction, excepting to the south, and being very fatigued, I ran for Pandora Harbour, which we found to be full of drift ice, and so we anchored in the bight outside.

On the following morning, the 26th, the S.W. pack was driving into Hartstene Bay, and threatening to shut us in; so I weighed anchor and proceeded out, and we lay to under the glacier by Cape Alexander all that day and night.

On the 27th, still blowing hard from S.S.W., the ice continued to close, and some floes had already entered our late anchorage and lay across its entrance. We sailed out from under the glacier to the point of Cape Alexander in order to obtain a better view, and found that a heavy pack had driven up from the S.W. upon the land south of the Cape, off which there still remained about half-a-mile of water. To the southward and south-westward the sea was now covered with heavy ice and bergs, but we could still see open water about six miles due south from the Cape. Our retreat thus appeared as if

about to be cut off; and, as we could not remain in our present position, we had either to try to re-enter the harbour, there probably to be shut in for the winter, or to attempt to force out through the pack into the water seen in the south. There was no time to reflect, as a southerly storm was evidently approaching. So I chose the latter alternative, and immediately steamed into the slackest place in the pack, and succeeded by 2 p.m. in reaching the water, where we lay to with the engines going during the following 24 hours in a violent gale and snow storm—a breaking sea, and the ice on each hand compelling us to tack the ship incessantly.

August 28th, at 3 p.m., the gale moderated, and we saw that the ice had now filled the straits and the head of Baffin Bay right across, and to about 8 miles south of Cape Alexander. The pack extended in the S.W. as far as visible, but in the south there was open water, with a high swell rolling up from that direction.

As we could not now re-enter the straits until some change should occur, and it was purposeless to remain outside in Baffin Bay, I decided to proceed towards Upernivik, in North Greenland, upon the chance of finding that the last ship had not already sailed for Denmark, and in that case to send an officer home, and then to return to Smith Sound. In arriving at this decision, I was guided by the conviction that either by remaining in our present position, or in returning north, we should very probably be overtaken by the frost, and have to remain during the winter, for which we were, however, fully prepared, if necessary. We were all in good health, and our ship had received no serious damage, beyond the bending of one of the blades of the propeller, which, however, considerably impeded our speed under steam. We consequently steered southward, at 4 p.m., and on the following morning were off Hakluyt Island, having the pack always on our starboard hand until now, when it trended away in the direction of Clarence Head.

As we had not met any of the natives, and being desirous of ascertaining where they were located, in the event of our returning northward, I steered for Bardin Bay, in Whale Sound. On entering the Bay we soon observed a summer tent, and some Esquimaux, with their dogs, running to and fro, evidently to attract our attention. The bay was found to be full of reefs, and we had to back out and lie to at the entrance. I then landed with several of the officers, taking with us Christian, our Esquimaux interpreter, in his kyack.

The natives met us without fear, and helped to haul our boat on the shore. They consisted of the members of one family, ten in all, and appeared to have plenty of food; they were grateful, however, for some walrus-flesh which I gave them. They were very communicative and natural in their manners. They told us that they had had a very good hunting season, on account of the prevalence of much ice. They had seen no ships or white men for many years, but said that an old man who lived with his family on Northumberland Island had seen two ships pass northward last summer. They had heard of the "Polaris" wreck, but had not been so far north for some years; and I did not see anything in their possession to disprove their statement. I noticed amongst their treasures a ship's bucket, half the top of a mahogany table, a Greenlander's kyack paddle, much ice-worn, and a piece of a packing-case marked "Lime-juice, Leith," all of which they said had drifted into the bay, at different times, from the southward. This proves the existence of a permanent current to the northward along the coast from West Greenland and Melville Bay.

These Esquimaux, living in the extreme Latitude of 77° 12′ N., seemed to be a kind and simple people, robust and healthy. They offered us everything they had, and when asked what they would like to receive, the chief came off to the ship, and from all our treasures he selected a 15-foot ash oar, and some gimlets. He wanted the oar for spear shafts, and the gimlets to bore ivory and bone, in order to cut it. We then gave them some other useful presents, and received some narwhal's horns, specimens of their pot stone cooking kettles, and of the iron pyrites used for striking fire. We also exchanged some dogs, giving them five of ours for three of their finest bear-hunting and team dogs.

Having taken leave of these interesting people, we sailed out of the bay in the evening, and continued our voyage towards Upernivik, where we arrived on the evening of Sept. 7, after a stormy passage and much difficulty during the dark nights, with the quantities of icebergs on the coast. On the evening of the 6th we ran into the edge of the middle ice in Lat. 73° 12′ N., Long. 60° 30′ W. It was, however, much broken into small floes, upon one of which I shot a remarkably fine Polar bear.

The governor of Upernivik came off to meet us, and informed me that the last ship had sailed on Aug. 16th, and he held out no hopes of our finding a ship for Europe at this late season in any of the more southern colonies.

As we had now no opportunity of communicating with home, and considering that it would only complicate matters were we to be unavoidably detained the winter, without the means of informing their Lordships, I anchored the ship in the Danish harbour, and reluctantly gave orders to fill up with fresh water, and to refit for our return to England, according to our original intention, if nothing should occur to render it necessary for us to winter in the north.

During our stay in Smith Sound we had taken every opportunity of sounding, with Negretti's or the Miller-Casella thermometers attached, whenever practicable. The greatest depth was found in the middle of the Sound, in the parallel of Cape Isabella, where it is 600 fathoms, and on this occasion a beautiful asterias, measuring 3 feet in diameter with the arms extended, was brought up on the line from the bottom; it was quite alive, but very sluggish upon being landed on the deck.

The ice we met in Smith Sound consisted of those solid pieces apparently formed near the shore in strong currents, and much pressed up by the action of the tides. These were intermingled with large and small floes, and much oceanic or Polar ice; the whole from its deep draught of water forming a pack of the heaviest description, and so unyielding as to render it unsafe to strike it with any force; consequently, the more difficult to manœuvre a ship amongst it.

With reference to the currents, after a month's constant cruising we arrived at the conclusion that there is a permanent current flowing northward on the east side, and southward on the west side, but not sufficiently strong to check the tides; the stream of the flood being always north, and of the ebb south, on both sides.

With regard to magnetic observations, a complete series was made with the Jones and Fox circles at Disco, Upernivik, and Pandora Harbour, in Latitude 78° 14′ 15″ N., by Navigating Sub-Lieutenant Pirie, R.N., aided by Lieutenants Arbuthnot and Becker. A full meteorological register has been kept by Dr. Horner.

We left Upernivik on the 11th, and arrived at Godhavn (Disko) on the night of the 15th, remaining there until the 21st, when I sailed for England, as I considered that if the ships were on their return home now they had already passed down Davis Strait.

On our passage we experienced calms and light variable winds for the first week, making but little progress; however, the weather soon changed, and set in with strong south-easterly and southerly gales, which continued almost without interruption until October 26th, when we were 300 miles off the N.W. of Ireland. We had on October 1st, in Davis Strait, most unexpectedly met a quantity of heavy Spitzbergen drift ice, in Lat. 64° 31′ N., Long. 54° 40′ W., and passed through a severe S.E. gale amongst it the same night. On the 16th, in Lat. 54° 38′ N., Long. 44° 30′ W., we sighted H.M. ships "Alert" and "Discovery," and bore away to communicate with them. We remained in company until the 19th, when we parted from the "Discovery" in Lat. 55° 39′ N., Long. 35° 48′ W., and on the following day we experienced a hurricane from the S.W., with the barometer at 28·36. After a series of head winds and calms, we arrived off Crookhaven on the morning of the 30th, and Falmouth November 1st. All well.

In concluding this Report I have the honour of expressing to their Lordships how much I am indebted to Lieutenant C. R. Arbuthnot, R.N., and to Navigating Sub-Lieutenant G. Pirie, R.N., for their zealous and active services, and for the assistance they have rendered on all occasions; and I also avail myself of this opportunity of expressing the pleasure I have felt in having the honour of the association of two distinguished foreign officers, Lieutenant Alois Ritter von Becker, Austrian Imperial Navy, and Lieutenant Koolemans Beynen, Dutch Royal Navy, both of whom have shown the greatest zeal in the service on which we were engaged, and by their high attainments reflect infinite credit upon their noble professions.

I have the honour to forward herewith the two records of Captain Nares from Littleton Island and Cape Isabella, also Captain Hartstene's, U.S.N., record from Sutherland Island, and the relics collected at Polaris Camp, which perhaps might be acceptable to the United States Government. *See page* 177.

A chart showing the track of the voyage is enclosed.

I have the honour to be,
Sir,
Your most obedient Servant,
ALLEN YOUNG,
Commander R.Y.S. Arctic Yacht, "Pandora," Lieutenant R.N.R.

The Secretary to the Admiralty,
London, S.W.

"PANDORA,"
Davis Strait,
September 25th, 1876.

Dear Sir,

In compliance with your request I have the honour to make the following report of my visit to Cape Isabella on the 6th of August last.

After leaving the ship at 6 a.m. I first landed on a little cove on the S.E. side of the northern promontory of the cape, and having hauled the boat up on to some ice which was still fast to the rocks, started with Lieutenant Becker, intending to visit the cairn which we had seen on the upper part of the cape. However, on arriving at the top of the first ridge, which was about 200 feet above the level of the sea, we observed a small cairn on another low promontory about half-a-mile to the southward, and, thinking that we might probably find some record there which would render it unnecessary for us to go up to the other, I determined to visit it first. On arriving at it we carefully examined the ground 20 feet (magnetic) north of it, from which we had to remove about 2 feet of snow with our hands and knives, but could find no trace of a record. We also looked in the cairn itself, but there was no indication of anything having been placed there. Lieutenant Becker, however, on looking by chance behind some rocks about 20 yards off, in a north-easterly (magnetic) direction, discovered four wooden cases which lay in a crevice and were nearly covered with snow. These I at once examined, and found under them a cask, which he suggested might contain the letters from the expedition. But as the cases were marked "New Zealand Preserved Meat," and as I did not think it likely that the letters would be deposited in such an obscure place without some record being left at the cairn to say they were there, I concluded it to be a depôt of provisions, and, in accordance with the instructions which you had given me not to disturb any such depôt, did not further examine it. We then climbed to the cairn on top of the cape, and, on searching 20 feet (magnetic) north of it, soon discovered the record, a copy of which I handed to you on my return on board. I regret to say that just after I had made one copy of this, and had written a notice of our visit on the back of it, a strong gust of wind took the original record from under a stone where I had placed it, and that although I followed it a long way down the hill, it eventually got amongst the cliffs, and I was unable to recover it. I therefore left the copy which I had made, in its place, and wrote out another one which I brought on board. The lower cairn I found to bear W. by N. (mag.) from this one, so thought the letters—if there were any—would probably be found on the same point but lower down, as the cairn lies at least 200 feet above the level of the sea. We therefore returned to the boat, and getting everything into her, proceeded to a little bay just below the cairn where we managed to effect a landing. We then separated and searched all round the point, but could find no signs of a cask; so going again up to the cairn, I removed with a shovel all the snow in a direction magnetic north of it, in case I might on the former occasion have missed the record; but there was nothing. I also again examined the cases, but from their weight and appearance felt sure that they contained nothing but "preserved meat." The recall had now been flying on board the ship for some time, so depositing our cask of letters with the supposed depôt, and placing our record 20 feet magnetic north of the cairn, I hurried back to the boat, and reached the ship about 3.20 p.m. Had we delayed much longer, we should probably have been unable to launch the boat, as the wind had increased considerably from the northward, bringing down large quantities of loose ice, which was so packed in against the shore that even then it was with great difficulty we got the boat out through it.

Before concluding I beg to remark that this account has been almost entirely copied from that in my journal which was written at the time, and is therefore uninfluenced by events which have occurred subsequently.

I have the honour to be, dear Sir,
Your obedient Servant,
CHARLES R. ARBUTHNOT,
Lieutenant R.N.

Captain Allen Young,
"Pandora."

Cape Alexander,
August 16*th*, 1855.

The U.S. Brig "Arctic,' separated from her consort, the "Release," on the morning of the 15th instant off Wolstenholm Island, arrived here this day, and having made unsuccessful search for traces of Dr. Kane or Sir John Franklin and their associates, proceeded immediately on to Cape Hatherton for the same purpose.

H. J. HARTSTENE,
Lieutenant commanding U.S. Arctic Expedition.

Returned here from Cape Hatherton August 18th. Have received information from Esquimaux. Dr. Kane had lost his vessel and gone in his boats. I am going to B(eechy) Island.

HARTSTENE.

August 19*th*, 1855.—I have returned from Cape Hatherton, and am on my way to rejoin you. If I miss you, remain off Cape Alexander till I return.

HARTSTENE.

U.S. Brig "Arctic," Cape Alexander,
August 16*th*, 1855.

Sir,

Finding no traces of the missing ones, I shall proceed immediately to Cape Hatherton in continuance of the search, where you will join. . . . You will re-inter the record of our touching here, together with another from yourself to the same effect, all your records to be within 12 feet north by compass of a cairn erected on the most conspicuous and accessible points.

Respectfully, &c.,
H. J. HARTSTENE,
Lieutenant commanding Arctic Expedition.

Lieutenant Commander Charles C. Simms,
U.S. Bark "Release."

H.M.S. "ALERT," at Cape Isabella,
29*th July*, 1875.

"Alert" and "Discovery" erected this cairn 29th July, 1875. Should the Strait be impassable for a sledge, the despatches from the expedition will be deposited in a cask on the lower point magnetic west of this position each spring of our stay north of Smith Sound.

Anyone having despatches or letters for the expedition, is requested to deposit them in the cask, unless he is coming farther north, in that case a cairn will probably be found at Cape Sabine, Dobbin Bay, Carl Ritter Bay, and Port Bellot. All well on board. No ice in sight.

Should the strait be passable, the despatches will be taken to Littleton Island.

G. S. NARES,
Commanding Expedition.

NOTE.—This is a correct copy of the original, taken from one written at the cairn.

CHARLES R. ARBUTHNOT,
Lieutenant R.N.

Notice written on the back of the copy of the record which was left at the upper cairn, Cape Isabella:—

THE CAIRN,
CAPE ISABELLA,
August 6th, 1876.

The "Pandora," Captain Allen Young, arrived off here this morning and examined cairn, removing Captain Nares' record and leaving a copy on the back of this.

The point named will be examined, and should a cask of letters from the Expedition be found, another cask with letters for the Expedition will be put in its place. Should no cask be found, our cask will be put with depôt of provisions, which has already been visited.

The "Pandora" record will be left 20 feet (magnetic) north of the cairn, close to depôt of provisions, and contains full particulars of the voyage.

CHARLES R. ARBUTHNOT,
Lieutenant R.N.

Appended to "Pandora" record before depositing it at the lower cairn, Cape Isabella:—

Having visited the cairn on top of the cape, I have carefully examined this point, but can find no signs of a cask of letters; also, as no record is at this cairn, I conclude that no sledge party has visited this place.

A cask of letters, &c., has been placed with the depôt of provisions; but the Admiralty despatches, with the remainder of the letters, will be carried farther north, if possible. If this is not possible, they will probably be placed on Lyttleton Island.

CHARLES R. ARBUTHNOT,
Lieutenant R.N.

NOTE.—The copies of these two notices were written from memory after returning on board, and may not be exactly the same as the originals left at the cairns; but they are very nearly so.

CHARLES R. ARBUTHNOT,
Lieutenant R.N.

H.M.S. "ALERT," at Jensen Point, Hartstene Bay,
28th July, 1875.

The "Alert" and "Discovery" arrived here this morning. As soon as I have examined the neighbourhood of "Life Boat Cove" I shall cross to the west shore of the strait, and proceed to the northward on that side.

There is now no ice in sight. Wind strong from north. Should this cairn not be visited by a sledge party from the expedition before June, 1876, our despatches will be found near a cairn on Cape Isabella; but if the strait is easily crossed, the sledge will visit this position.

Should any letters for us be brought thus far I request that they may be brought on as far north as the vessel intends to come on the west side of the strait. If the vessel is not to enter the strait, then I request that our letters may be placed in my cairn on Cape Isabella. Should the weather prevent my visiting that position and establishing a cairn, I must ask the Captain of the vessel to build one and deposit our letters 20 feet magnetic north of it, or in such other position as he may decide on, leaving due notice at the cairn.

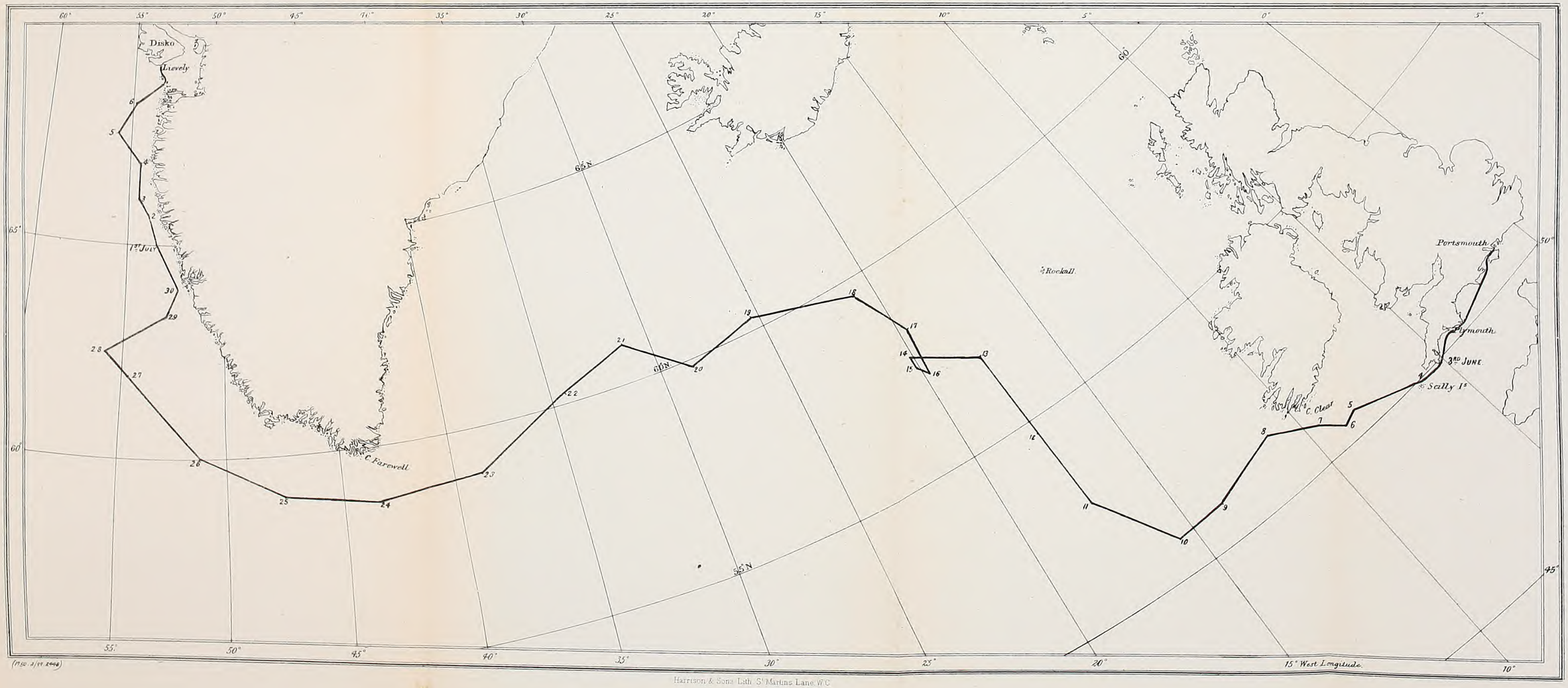
My intended stations on the west shore of the strait, where cairns may be expected to be found, and which will be regularly visited as long as the expedition remains north of Smith Sound, are Cape Isabella, Island off Cape Sabine, Dobbin Bay, or Cape Leidy, Carl Ritter Bay, and Cape Bellot.

All are well on board. A notice will be left on Sunrise Point. Latitude 78° 20′ N, longitude 73° 15 W.

G. S. NARES,
Commanding Expedition.

TRACK OF THE "PANDORA" FROM ENGLAND TO DISKO, 1876.

ALLEN YOUNG, COMMANDER.



(Pso. 2/99 2448)

Harrison & Sons Lith. St Martins Lane, W.C.

Medical Library
24 NOV 1915

10th November, 1876.

Sir,

I have laid before my Lords Commissioners of the Admiralty your despatch of the 14th July (received only on the 4th instant), and your further despatch of the 1st instant in which you report your proceedings since leaving Kudliscet, Waigatz on the 15th July.

2. My Lords have observed with much satisfaction that the mission entrusted to you of communicating with the depôts of the Arctic ships at the entrance of Smith Sound has been successfully accomplished, and I am to express to you their obligations for the readiness with which you undertook the service, and the able manner in which it was carried out.

3. Their Lordships have given instructions that the good service in the "Pandora" of Lieutenant C. R. Arbuthnot and Navigating Sub-Lieutenant G. Pirie be noted in favour of those officers.

I am,

Sir,

Your obedient Servant,

ROBERT HALL.

Captain Allen Young.

APPENDIX No. 1.

REPORT OF SIR GEORGE NARES ON THE QUALITY OF THE PROVISIONS AND STORES SUPPLIED TO THE ARCTIC EXPEDITION.

Stoneham House, Winchester,
10*th February*, 1877.

Sir,

Not printed. With reference to your letter C.P. $\frac{10297}{11827}$, 11th December, 1876, directing me to report upon certain stores supplied to the Arctic Expedition, I beg to enclose herewith for the information of the Lords Commissioners of the Admiralty, a report compiled from my own opinion and that of various officers and men of the Expedition.

I have the honour to be, Sir,
Your obedient Servant,
G. S. NARES,
Captain.

The Secretary of the Admiralty,
London.

Report on various Stores supplied to Arctic Expedition, 1875–6.

1. *Bacon.*—Excellent, and suitably packed.
2. *Burton Ale.*—Excellent. Would recommend as large a quantity as can possibly be stowed to be supplied.
3. *Biscuit for Dogs.*—Useless for Esquimaux dogs as a diet. The supply was good. Would recommend meat to be carried in lieu, as occupying less space.
4. *Baking Powder.*—The supply was good. The malt and hops, which were excellent, used instead.
5. *Compressed Vegetables.*—Very good, especially as an addition to soup.
6. *Coffee, Ground.*—Very good. A larger supply required for extra issue.
7. *Curry Paste.*—Very good, but curry powder preferred.
8. *Chillies, Dried.*—Very good. Supply insufficient.
9. *Culinary Herbs.*—Very good. Supply insufficient.
10. *Preserved Rhubarb.*—Very good. The ration should be 6 oz. instead of 2 oz.
11. *Preserved Gooseberries.*—Very good. The ration should be 6 oz. instead of 2 oz.
12. *Normandy Pippins.*—Very good, and decidedly the best article of the sort we have on board.
13. *Garlic in Vinegar.*—Not much used; there was a general prejudice against it.
14. *Onion Powder.*—Very good, and much appreciated. An extra supply would be useful on board to flavour preserved meats.
15. *Preserved Potato.*—Very good. A larger supply would have been advantageous to allow more frequent issues.
16. *Preserved Vegetables.*—All very good. Preserved parsnips would be a good addition, and serve as a change. Beetroot, if it could be preserved, would be good.
17. *Preserved Meats.*—All very good, and much superior to the ordinary service preserved meat, but they appear to be much overcooked Roast mutton and rump steaks much liked; minced collops were little sought after. Require an allowance of seasoning. Australian mutton particularly liked.
18. *Rum, Jamaica.*—Good.
19. *Rum, Red Heart.*—Good.

20. *Tea.*—Very good. Supply not sufficient to allow for extra issues. Advise an increase.

21. *Tea, Compressed.* — The convenience of this tea cannot be overestimated. Suggest that all the tea supplied should be compressed.

22. *Vinegar, Concentrated.*—Very good.

23. *Wort, Solid.*—None supplied.

24. *Pickles.*—Of all kinds good, especially onions and cabbage. Allowance ample.

25. *Blankets.*—Were small. The ordinary service blanket was infinitely preferred to the so-called "Hudson Bay Blanket" on account of size.

26. *Fisherman's Boots.*—Very good.

27. *Spare Soles.*—Good.

28 and 29. *Cloth, Cork-soled Boots.*—Very good. The leather at the toe covering the cork sole much too thin. Recommend box cloth tops instead of duffle. Supply should be larger; it would have been insufficient for three years.

30. *Spare Soles for.*—Good.

31. *Waterproof Preparation for Boots.*—Very good. Supply insufficient.

32. *Duck Boots.*—Very good, but insufficient room for foot gear.

33. *Knee Boots.*—Very good. Much used in summer.

34. *Cloth Slippers.*—Excellent for wear on lower deck. Supply insufficient for three years. Recommend two pairs for each man.

35. *Box Cloth Jackets.* 36. *Box Cloth Trousers.*—Very good material and very useful, but badly stitched, and cloth cut so close as to make no allowance for re-sewing seams. Supply sufficient if an extra pair of sealskin trousers are supplied.

37. *Down Shirts.* Very good for Quarter-Masters and sick. Supply sufficient.

38. *Wool Mitts.*—Grey Mitts much preferable, and should be supplied in lieu.

39. *Grey Mitts.*—Very good; found to wear best of all, with a Shetland wool mitt inside.

40. *Shetland Mitts.* 41. *Shetland Gloves.*—Very good. Large size should be supplied to allow for shrinking when they get wet.

42. *Caps, Shetland (Dundee).*—Excellent; could not be improved upon.

43. *Yarn Pantaloons.*—Useful, but the material very bad, being too open; soon went to pieces.

44. *Yarn Frocks.*—Wear very badly indeed, and were soon reduced to rags. The private blue close-knitted guernsey wore admirably, and were infinitely superior to those supplied to the Expedition.

45. *White Hose.*—Very good. Should be heeled with some strong woollen substance, such as fearnought, instead of chamois leather.

46. *Grey Hose.*—Very good. Would be better not heeled with chamois leather, but as suggested for the white hose. An extra supply would have been necessary for three years.

47. *Sou'-westers.*—Very good. Only used when crossing the Atlantic, therefore could be dispensed with, particularly when (Dundee) Shetland caps are issued.

48. *Welsh Wigs.*—Very good and useful.

49. *Helmet Caps.*—Cloth with flannel lining wore excellently. Very good. These were supplied in lieu of Welsh wigs, and proved to be more serviceable.

50. *Moccasins.*—Most excellent things, but the supply would not have been half enough for three years. It was found necessary to attach leggings of canvas or shirt-sleeves to keep the snow from working into them, and also to greatly enlarge the toe end.

51. *Sealskin Jackets.*—Sealskins are invaluable for winter wear. The jackets and trousers were good, but in some cases there was a good deal of patchwork, and the stitches often gave way; in other cases the skins were very good; they are, however, unfit for hard work, by confining the perspiration.

52. *Sealskin Trowsers.*—Very useful. It would be as well that they should have a soft lining inside the crutch and knees, as they wear out the under garments. A second pair would be required for a three years' supply.

53. *Sealskin Caps.*—Very good, but fitted badly, being too deep in the head part; should be fitted before leaving England.

54. *Sealskin Mitts.*—Excellent for exposure without exertion.

55. *Leather Mitts.*—Very useful, though the leather they were made of did not last long. Much used by the men when working hawsers.

56. *Carrier Pigeons.*—Perfectly useless.

57. *Colza Oil.*—Excellent.

58. *Stearine, Cocoanut.*—Answered capitally.

59. *Gutta Percha Cases.*—Very good.

60. *Duck for Tents.*—Very good.

61. *Duffle.*—Opinions vary. I think a lighter and closer material would answer better, and personally prefer box cloth. For sleeping-bags and coverlets the duffle answered well. Many of the ship's company liked the duffle trousers for travelling.

62. *Floorcloths.*—Crack, tear, and become useless; they are, nevertheless, indispensable to travelling parties during the summer. I would suggest, if possible, a more durable article and a lighter material being supplied in future.

63. *Gauze.*—Useless. Spectacles very much better.

64. *Housing Cloth.*—Very good. Places for trap hatches and stove pipes should be fixed on before leaving England. Should be spread and fitted before leaving England.

65. *Japanese Fishing Rods.*—Useless. Rocket staffs preferred.

66. *Knives, Butchers'.*—Good.

67. *Knives, Long-bladed for Natives.*—Good.

68. *Lining for Tents.*—Very good.

69. *Solar Lamps.*—Good, but rather wasteful, and might be much improved.

70. *Lamps, Moderator.*—Very good.

71. *Chimneys.*—Very good.

72. *Cottons.*—Very good.

73. *Other Lamp Gear.*—Very good.

74. *Matches, Wax.*—Very good. Required to be carried in small corked speecimen bottles on sledges, two dozen in a bottle.

75. *Matches, Patent Safety.* 76. *Striking Papers*—Very good on board ship. No use for sledging; the striking papers get wet, rendering the matches useless.

77. *Pipes.*—Useless. I would recommend a good strong brier.

78. *Spirit, Methylated.*—Very good.

79. *Saws, Hand, for Natives.*—Very good.

80. *Shoemakers' Awls.*—Very good.

81. *Shoemakers' Bristles.*—Very good.

82. *Shoemakers' Twine.*—Very good.

83. *Cobblers' Wax.*—Very good.

84. *Soles, Spare, for Half-Boots.*—Very good.

85. *Spectacles.*—Very good, but rather too shallow, and the tin boxes were not good or strong enough.

86. *Spare Glasses.*—Very good.

87. *Elastic.*—Very good.

88. *Spoons, Horn.*—Answered their purpose, but I think a more suitable article might be used.

89. *Sperm Oil.*—Very good.

90. *Needles, Sewing.*—Very good.

91. *Needles, Large, for Natives.*—Very good.

92. *Thread.*—Very good.

93. *Thread, Coloured, for Natives.*—Very good.

94. *Thimbles.*—Very good.

95. *Tobacco, Cavendish.*—Navy leaf preferable.

96. *Tobacco, Virginia.*—Very good for sledging.

97. *China.*—Very good indeed.

98. *Earthenware.*—Very good indeed.

99. *Glass.*—Very good indeed.

100. *Fish-hooks.*—Very good.

101. *Boats.*—Very good in material and workmanship; strong and supple. The whalers are perhaps a little too crank. It is marvellous what they sometimes stood.

102. *Buoys, Life, Welch and Bourchier's.*—Very good if fitted in-board, clear of the gunwale, so as to be shot into the water instead of letting go. It is easily carried away when stowed out-board.

103. *Hair Felt.*—

104. *Harpoon Guns, $1\frac{1}{4}$-in.*—Very good and suitable.

105. *Harpoons.*—Very good and suitable.

106. *Spare Shackles, with Nipples.*—Very good and suitable.

107. *Nipple Wrenches.*—Very good and suitable.

108. *Gun Wrench.*—Very good and suitable.

109. *Rammers.*—Very good and suitable.

110. *Powder Flasks.*—Very good and suitable.

111. *Packing Cases.*—Very good and suitable.
112. *Spare Tumbler Swivels for Guns.*—Very good and suitable.
113. *American Swivel Hand Harpoon.*
114. *Seal Clubs.*
115. *Pickies.*
116. *Spurs.*
117. *Whale Lances.*
118. *Blubber Knives.*
119. *Gumming Knives.*
120. *Steels.*
121. *Sealing Knives.*
122. *Blubber Spades.*

Very good. A small supply of these articles desirable.

123. *Hill and Clark's Disengaging Gear.*—Answers very well indeed if care be taken to keep the safety lines in good order and in place when the boats are at the davits.
124. *Strips for No. 3 Hose.*—Good.
125. *Straps with Buckles.*—Good.
126. *Hand Loops.*—Good.
127. *Nets, Seine.*—Very good.
128. *Nets, Trammel.*—None supplied.
129. *Reefing Gear.*—Very good; too much praise cannot be given.
130. *Spirits of Wine.*—Very good.
131. *Crown Preserved Fuel.*—Very good. Very convenient when landing coal temporarily, preventing waste.
132. *Anchors, 20 cwt. and 25 cwt.*—Very good.
133. *Capstan.*—Very good combined with steam winch; saved much labour.
134. *Cartridges, Eley's.*—Very good in summer. In cold weather, owing to the gun-barrels shrinking, the paper cartridges were too large. Recommend either smaller size or copper.
135. *Cartridges, Moore and Gray's.*—Very good in summer. In cold weather, owing to the gun-barrels shrinking, the paper cartridges were too large. Recommend either smaller size or copper. A small supply very useful.
136. *Fire-hearths.*—Found to be suitable and economical. The coppers were too large for cooking, but were necessary for melting the ice.
137. *Stoves, Ormson's.*—Proved the most economical; for though kept burning both night and day has only burnt 1 lb. of coal an hour, except in the very cold weather, when 32 lbs. was burnt in the day. I think hot-water pipes might be fitted to all stoves.
138. *Stoves, Deane's.*—Good, but doors are very badly fitted even for general naval service, and always require to be altered by ship's artificer.
139. *Fog Alarms, Anderson's.*—Very good.
140. *Fowling Pieces.*—Breech-loading guns very good for general purposes, but require very careful looking after when sledging. The locks for the guns supplied were defective, many going off at half-cock.
141. *Cleaning Rods.*—Very good.
142. *Loading Apparatus.*—Very good.
143. *Bullet Moulds.*—Very good.
144. *Gun Bags.*—Very good.
145. *Rope, Steel Wire, for Towing Hawser, &c., with Fixings.*—When used in a straight line is very useful, but whenever a dead nip comes into play it is not to be trusted. The wire wheel ropes soon wore out, but the wire pendant for hoisting the screw lasted the whole commission without apparent deterioration. Very good for stowing and reeling up after use in cold weather.

Medical Comforts.

146. *Condensed Milk.*—Very useful as a substitute for new milk. Well put up.
147. *Chocolate and Milk.*—Very useful and nourishing. Well put up.
148. *Calves' Foot Jelly.*—Of uncertain nutritive value.
149. *Cloves.*—Useful to aid digestion and to flavour food.
150. *Apple Jelly.*—Most useful. Well put up.
151. *Extractum Carnis.*—Useful.
152. *Essence of Beef.*—Useful.
153. *Maccaroni.*—Very useful when boiled with meat and soup. Well put up.
154. *Cocoatina.*—Not used.

155. *Extract of Mutton, Bagot's.*—Very useful as a vital restorative in exhausted states of the system. Well put up.

156. *Egg Powder.*—Useful when mixed with milk and brandy. Well put up.

157. *Preserved Fowl.*—Useful as a change from preserved beef or mutton. Well put up.

158. *Arrowroot.*—Good when cooked with milk. Has not much nutritive value. Well put up.

159. *Currants, Red.*—Very useful and good.

160. *Currants, Black.*—Very useful and good.

161. *Nutmegs.*—Useful as aids to digestion and to flavour food.

162. *Oysters, Preserved.*—Useful as a change of diet. Some kept badly.

163. *Pearl Barley.*—Useful and palatable in broth of meat. Well put up.

164. *Sago.*—Useful in puddings with milk and eggs.

165. *Sugar, Refined.*—Useful.

166. *Tapioca.*—Very useful.

167. *Whiskey.*—Very useful, and well put up.

168. *Gin.*—Very useful, and well put up.

169. *Brandy.*—Very useful, and well put up.

170. *Port.*—Very useful, and well put up.

171. *Sherry.*—Very useful, and well put up.

172. *Champagne.*—Very useful, and well put up.

173. *Mustard and Cress Seed.*—Very good.

174. *Respirators.*—Effective, except during the extreme cold weather. Only valuable in the special case of a lung disease.